CHANGE

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

7400.2E CHG 1

6/4/01

SUBJ: FAA ORDER 7400.2, PROCEDURES FOR HANDLING AIRSPACE MATTERS

1. **PURPOSE.** This change transmits revised pages to Order 7400.2, Procedures for Handling Airspace Matters, and a Briefing **Guide.**

2. **DISTRIBUTION.** This change is distributed to select offices in Washington headquarters, regional offices, the FAA Technical Center, the FAA Aeronautical Center, all air traffic field facilities, international aviation field offices, and interested aviation public.

3. **EFFECTIVE DATE.** July 7, 2001.

4. **EXPLANATION OF CHANGES.** This change conveys editorial corrections and organizational name changes.

5. **DISPOSITION OF TRANSMITTAL.** Retain this transmittal until superseded by a new basic order.

6. **PAGE CONTROL CHART.** See the Page Control Chart attachment.

John S. Walker
Program Director,
Air Traffic Airspace Management

Date: JUNE 4, 2001

Distribution: ZAT-740; AMA-522; AML-350; ATA-10; ATA-400; SVC-121-23

PAGE CONTROL CHART

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Part I. GENERAL PROCEDURES FOR AIRSPACE MANAGEMENT

Chapter 1. BASIC

Section 1. INTRODUCTION

I-I-I. PURPOSE

a. This order prescribes policy, criteria, guidelines, and procedures applicable to the Air Traffic Airspace Management Program, ATA; Spectrum Policy and Management, ASR; Office of Airport Planning and Programming, APP; Office of Airport Safety and Standards, AAS; Aviation System Standards, AVN; and Flight Standards Service, AFS.

b. This order also applies to all regional and field organizational elements involved in rulemaking and nonrulemaking actions associated with airspace allocation and utilization, obstruction evaluation, obstruction marking and lighting, airport airspace analysis, and the management of air navigation aids.

c. While this order provides procedures for handling airspace matters, additional procedures and criteria to supplement those contained herein may be set forth in other directives and should be consulted.

I-I -2. DISTRIBUTION

This order is distributed to select offices in Washington headquarters, the Office of Commercial Space Transportation, regional Air Traffic, Airway Facilities, Flight Standards, Airports Divisions, the William J. Hughes Technical Center, the Mike Monroney Aeronautical Center, Aviation System Standards, all field facilities, international aviation field offices, and interested aviation public.

I-I -3. CANCELLATION

a. This order cancels FAA Order (FAAO) 7400.2D, Procedures for Handling Airspace Matters, dated September 16, 1993.

b. The following Policy Memorandums are also cancelled:

1. 89-001, FCC Marking and Lighting Coordination, dated February 23, 1989;

2. 89-002, Airspace Determinations on Seaplane Bases Under Part 157, dated April 19, 1989;

3. 89-005, Evaluating Aeronautical Effect, dated November 9, 1989;

4. 90-00 1, Evaluating Aeronautical Effect, dated January 9, 1990; and

5. 90-002, Aeronautical Studies, dated March 21, 1990.

I-I -4. EFFECTIVE DATE

This order is effective on December 7, 2000.

1-1-5. EXPLANATION OF CHANGES

a. This order has been revised to incorporate previously issued Policy Memorandums and has been divided into six parts for ease of use and references. Further, several editorial changes have been made to reflect organizational changes, as well as policy and procedural changes.

b. If further information is desired, please direct questions through the appropriate facility/regional office to the headquarters office of primary responsibility.

I-I -6. CHANGE AUTHORITY

The Program Director, Air Traffic Airspace Management, ATA-1, will issue changes to this directive after obtaining concurrence from the affected headquarters offices/services listed in the foreword.

Section 2. AUTHORITY AND ORDER USE

1-2-l. POLICY

The navigable airspace is a limited national resource that Congress has charged the Federal Aviation Administration (FAA) to administer in the public interest as necessary to ensure the safe and efficient use of aircraft. Although the FAA must protect the public's right of freedom of transit through the airspace, full consideration shall be given to all airspace users, to include national defense, commercial and general aviation, and space operations. Accordingly, while a sincere effort shall be made to negotiate equitable solutions to conflicts over the use of the airspace for non-aviation purposes, preservation of the navigable airspace for aviation shall be the primary emphasis.

1-2-2. AUTHORITY AND APPLICABILITY

The authority for the procedures and associated rules and regulations addressed in this order are provided in 49 U.S.C. Subtitle VII, Aviation Programs, Part A - Air Commerce and Safety, and Part B - Airport Development and Noise:

a. Section 40 10 1, Policy;

b. Section 40102, Definitions;

c. Section 40103, Sovereignty and Use of Airspace, and the Public Right of Transit;

d. Section 40106(a), Deviations From Regulations;

e. Section 40 109, Authority to Exempt;

f. Section 40 113, Administrative;

g. Section 44501(a), Long Range Plans and Policy Requirements;

h. Section 44502, General Facilities and Personnel Authority;

i. Section 44502(c), Military Construction, Rockets, and Missiles;

j. Section 44718, Structures Interfering with Air Commerce;

k. Section 44719, Standards for Navigational Aids;

1. Section 44720, Meteorological Services;

m. Section 44721, Aeronautical Maps and Charts;

n. Section 46104(e), Designating Employees to Conduct Hearings;

o. Section 4630 1, Civil Penalties;

p. Se&on 46308, Interference with Air Navigation;

q. Chapter 471, Airport Development - All of Subchapters I and II; and

r. Chapter 475, Noise - All of Subchapters I and II.

I-2-3. TITLE 14 CODE OF FEDERAL REGULATIONS (CFR) REFERENCES

a. Part 11, General Rulemaking Procedures.

b. Part 71, Designation of Class A, Class B, Class C, Class D, and Class E airspace areas; airways; routes; and reporting points.

c. Part '73, Special Use Airspace.

d. Part 77, Objects Affecting Navigable Airspace.

e. Part 91, General Operating and Flight Rules.

f. Part 93, Special Air Traffic Rules and Airport Traffic Patterns.

g. Part 95, IFR Altitudes.

h. Part 97, Standard Instrument Approach Procedures.

i. Part 101, Moored Balloons, Kites, Rockets and Free Balloons.

j. Part 152, Airport Aid Program.

k. Part 157, Notice of Construction, Alteration, Activation, and Deactivation of Airports.

1. Chapter III, Commercial Space Transportation.

m. Chapter V, National Aeronautics and Space Administration.

1-2-4. FUNCTIONAL RESPONSIBILITIES

Functional responsibilities of Headquarters and regional organizations referred to in this order are detailed in Orders 1100.1, FAA Organization --

Policies and Standards; 1100.2, Organization - FAA Headquarters; and 1100.5, FAA Organization - Field.

I-2-5. WORD USAGE

The concept of word usage and intended meaning as used in this order is set forth below:

a. "Shall" or a command verb is used when application is mandatory.

b. "Shall not" is used when an action is prohibited.

c. "Should" is used when application is recommended.

d. "May" and "need not" are used when application is optional.

e. "Will" is used only to indicate futurity, never to indicate any degree of requirement for application of a procedure.

f. "Navigable airspace" means airspace at or above the minimum altitudes of flight prescribed by the Code of Federal Regulations and shall include airspace needed to ensure safety in the takeoff and landing of aircraft. By policy, the term "airspace above minimum altitudes of flight" is interpreted for application to mean "airspace at or above minimum flight altitudes."

g. "Controlled airspace" is a generic term used to describe Class A, Class B, Class C, Class D, and Class E airspace.

I-2-6. ABBREVIATIONS

As used in this manual the following abbreviations have the meanings indicated (see TBL 1-2-1).

1-2-7. ORDER CHANGES

a. This order will be updated semiannually.

b. The responsibility associated with the processing and coordinating revisions to this order is delegated to the Manager, Airspace and Rules Division, ATA-400.

c. Proposed changes or recommended revisions should be submitted directly to ATA-400.

d. When revised, reprinted, or additional pages are issued, they will be marked as follows:

1. Each revised or additional page will show the change number and effective date of the change.

2. Bold vertical lines in the margin **of** the text will mark the location of substantive procedural, operational, or policy changes; e.g., when material that affects the performance of duty is added, revised, or deleted.

FM Order Abbreviations

A/FD	Airport/Facility Directory
AAS	Office of Airport Safety and Standards
AAT	Air Traffic
ADO	Airport District Office
AE	Airport Elevation
AF	Airway Facilities
AFS	Flight Standards Service
AFSS	Automated Flight Service Station
AGC	Office of the Chief Counsel, Rules Docket
AGL	Above Ground Level
ALP	Airport Layout Plan
ANI	National Airspace System Implementation Program
APO	Office of Aviation Policy and Plans
APP	Office of Airport Safety and Standards
ARN	Communications, Navigation, Surveillance, and Infrastructure Directorate
ARP	Airport Reference Point
ARSR	Air Route Surveillance Radar
ARTCC	Air Route Traffic Control Center
ARU	Airborne Radar Unit
ASR	Airport Surveillance Radar
ASR	Spectrum Policy and Management
AST	Office of Commercial Space Transportation
ATA	Air Traffic Airspace Management Program
ATC	Air Traffic Control
ATCAA	Air Traffic Control Assigned Airspace
ATCRBS	Air Traffic Control Radar Beacon System
ATCSCC	Air Traffic Control System Command Center
ATCT	Airport Traffic Control Tower
ATD	Air Traffic Division
ATREP	Air Traffic Representative
ATS	Air Traffic Service

AVN	Aviation System Standards
CARF	Central Altitude Reservation Function
CASFO	Civil Aviation Security Field Office
CDRA	Center for Devices and Radiological Health
CFA	Controlled Firing Area
CFZ	Critical Flight Zone
CP	Construction Permit
DF	Directional Finder
DME	Distance Measuring Equipment
DNE	Does Not Exceed
DNH	Determination of No Hazard
DoD	Department of Defense
DOH	Determination of Hazard
DPH	Determination of Presumed Hazard
EBO	Exceeds But Okay
EMI	Electromagnetic Interference
ERP	Effective Radiated Power
FACSFAC	Fleet Area Control and Surveillance Facility
FCC	Federal Communications Commission
FDA	Food and Drug Administration
FL	Flight Level
FM	Frequency Management
FPO	Flight Procedures O[redacted]
FSDO	Flight Standards Dis[redacted]
FSS	[redacted]t Service Statio[redacted]
GAO	General Accounting Office
HIL	High Intensity Light
IAP	Instrument Approach Procedures
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rules
ILS	Instrument Landing Systems
IR	IFR Military Training Routes
IRAC	Interdepartmental Radio Advisory Committee
J	Joule
L/MF	Low/Medium Frequency
LFZ	Laser Free Zone
LLWG	Local Laser Working Group
LMM	Middle Compass Locators
LOA	Letter of Agreement
LOD	Letter of Determination
LOM	Outer Compass Locators
LSO	Laser Safety Officer
MAJCOM	Major Military Commands
MCA	Minimum Crossing Altitudes
MCP	Minimum Crossing Point
MEA	Minimum En Route Altitude
MHA	Minimum Holding Altitudes
MIA	Minimum IFR Altitudes
MLS	Microwave Landing System
MOA	Military Operations Area
MOCA	Minimum Obstruction Clearance Altitude
MPE	Maximum Permissible Exposure
MRAD	Milliradian
MRU	Military Radar Unit
MSA	Minimum Safe Altitude
MSL	Mean Sea Level
MTR	Military Training Route
MVA	Minimum Vectoring Altitudes
NACO	National Aeronautical Charting I Office
NAD	North American Datum
NAS	National Airspace System
NASA	National Aeronautics and Space Administration
NAVAID	Navigational Aid
NDB	Nondirectional Radio Beacons
NEPA	National Environmental Policy Act
NFDD	National Flight Data Digest
NFZ	Normal Flight Zone
NHRD	Nominal Hazard Zone Distance
NM	Nautical Miles
NOHD	Nominal Ocular Hazard Distance
NOTAM	Notices to Airmen
NPIAS	National Plan for Integrated Airport System
NPRM	Notice of Proposed Rulemaking
NR	Non-Rulemaking
NRA	Non-Rulemaking Airport
NWS	National Weather Service
OE	Obstruction Evaluation
OE/AAA	Obstruction Evaluation/Airport Airspace Analysis
OFZ	Obstacle Free Zone
PAPI	Precision Approach Path Indicator
PFC	Passenger Facility Charge
PL	Public Law
PSR	Project Status Request
RBS	Radar Bomb Sites
REIL	Runway End Identifier Lights
RNAV	Area Navigation
ROFA	Runway Object Free Area
RPZ	Runway Protection Zone
RVR	Runway Visual Range
RVV	Runway Visibility Value
SAMS	special Use Airspace Management System
SFZ	Sensitive Flight Zone
SIAP	Standard Instrument Approach Procedure
SMO	System Maintenance and Operations
SR	Scientific/Research Lasers
~~STAR~~	~~Standard Terminal Arrival Routes~~
SUA	Special Use Airspace

TERABA	Termination/Abandoned Letter
TEREXP	Termination/Expired Letter
TERPS	United States Standard for Terminal Instrument Procedures
TERPSR	Termination Project Status Letter
TOFA	Taxiway Object Free Area
UTC	Coordinated Universal Time
VASI	Visual Approach Slope Indicator
VFR	Visual Flight Rule
WGSI	Visual Glide Scope Indicator
VOR	Very High Frequency Omnidirectional Range
VORTAC	Very High Frequency Omni-Directional Radio Range and Tactical Air Navigation Aid
VR	VFR Military Training Route

TBL 1-2-I

Section 2. EXECUTIVE ORDER 10854

2-2-l. SCOPE

a. Executive Order 10854 extends the application of 49 U.S.C. Section 40103 to the overlying airspace of those areas of land or water outside the United States beyond the 12-mile offshore limit in which the United States, under international treaty agreement or other lawful arrangements, has appropriate jurisdiction or control.

b. Under the provisions of Executive Order 10854, airspace actions must be consistent with the requirements of national defense, international treaties or agreements made by the U.S., or the successful conduct of the foreign relations of the U.S.

NOTE-
The full text of Executive Order 10854 is detailed in FIG 2-2-l.

2-2-2. POLICY

Any rulemaking or nonrulemaking actions that encompass airspace outside of the United States sovereign airspace (e.g., beyond 12-miles from the U.S. coast line) reauire coordination with the Departments of 'Defense and State. All Executive Order 10854 coordination shall be conducted at the FAA headquarters level by ATA-400.

EXECUTIVE ORDER 10854
EXTENSION OF THE APPLICATION OF THE FEDERAL AVIATION ACT OF 1958

By virtue of the authority vested in me by section 1110 of the Federal Aviation Act of 1958 (72 Stat. 800: 49 U.S.C. 15 10), and as President of the United States, and having determined that such action would be in the national interest, I hereby order as follows:

The application of the Federal Aviation Act of 1958 (72 Stat. 731; 49 U.S.C. 1301 et seq.), to the extent necessary to permit the Secretary of Transportation to accomplish the purposes and objectives of Titles III and XII thereof (49 U.S.C. 1341-1355 and 1521-1523), is hereby extended to those areas of land or water outside the United States and the overlying airspace thereof over or in which the Federal Government of the United States, under international treaty, agreement or other lawful arrangement, has appropriate jurisdiction or control: Provided, that the Secretary of Transportation, prior to taking any action under the authority hereby conferred, shall first consult with the Secretary of State on matters affecting foreign relations, and with the Secretary of Defense on matters affecting national-defense interests, and shall not take any action which the Secretary of State determines to be in conflict with any international treaty or agreement to which the United States is a party, or to be inconsistent with the successful conduct of the foreign relations of the United States, or which the Secretary of Defense determines to be inconsistent with the requirements of national defense.

Dwight D. Eisenhower
The White House, November 27, 1959

FIG 2-2-I

Section 5. PROCESSING RULEMAKING AIRSPACE ACTIONS

2-5-I. PURPOSE

This section prescribes procedures to be followed when taking rulemaking actions to establish, modify, or revoke regulatory airspace.

2-5-2. RESPONSIBILITY

a. The Airspace and Rules Division, ATA-400, is responsible for processing Class A, B, and C airspace areas; special use airspace; offshore airspace areas; airways; jet routes; and those Class D and E airspace areas that overlie U.S. territories and possessions.

b. The Airspace and Air Traffic Law Branch, AGC-230, is responsible for ensuring that all the above airspace cases meet the requirements of the Administrative Procedures Act.

c. Regional' Air Traffic Divisions (ATD) are responsible for processing all Class D and E airspace area cases.

2-5-3. DOCKETS

a. Docket Location.

1. The official docket for Headquarters' rulemaking cases shall be maintained at the Federal Aviation Administration, Office of the Chief Counsel, Rules Docket, AGC-200, 800 Independence Avenue, SW, Washington, DC 20591.

2. The official docket for regional airspace rulemaking cases shall be maintained in the appropriate regional office.

b. Docket Identification.

1. Rulemaking cases shall be identified by a docket number that includes the last two digits of the calendar year, the abbreviation of the originating office, and a consecutively assigned number (e.g., 00-ASW-46).

2. Numbers shall run consecutively within each calendar year.

c. Docket Content. The official docket shall include all petitions, notices, rules, comments, correspondence, and related material concerning the case (other than working files).

2-5-4. FLIGHT PROCEDURAL DATA

a. If an airspace docket requires a procedure change and/or flight inspection, regional ATD shall coordinate the proposed effective date with the regional Flight Procedures Office (FPO).. The proposed effective date must consider the time needed to process procedural changes and allow ample time for flight inspection, if required. The FPO shall notify the regional ATD of any problems that could affect the proposed effective date. See Order 8260.26, Establishment and Scheduling Standard Instrument Procedure Effective Dates, for scheduled processing and publication dates.

b. If a rule without notice is to be issued and flight check data is required, the regional ATD shall inform the responsible regional FPO of the action and specific data requested.

2-5-5. SUBMISSION OF AIRSPACE CASES TO HEADQUARTERS

a. The regional ATD shall review the action proposed and submit a complete technical! description of the proposed airspace package (e.g., establishment, modification, or revocation) to ATA-400.

b. All background information including charts, proper justification and appropriate: recommendations shall be submitted.

c. If an airspace action needs to be completed! by a specific date, the regional ATD shall coordinate with the FPO and any other FAA offices as necessary to ensure that sufficient lead-time exists for meeting normal airspace procedural processing and charting requirements, and instrument approach procedure development.

d. The ATD shall submit to ATA-400 written comments received in response to the proposed! action, analysis of the comment(s), and any recommendations within 30 days after the: comment closing date. If applicable, a statement concerning the status of the flight procedures data for en route cases (e.g., Minimum En Route: Altitude, MEA; or Change Over Point, COP)) shall be included.

2-5-6. EFFECTIVE DATE OF FINAL RULES

a. Amendments to parts 71 and 73 shall be made effective at 0901 Coordinated Universal Time (UTC) and shall coincide with en route charting dates as furnished by ATA-400. Exceptions are as follows:

1. Safety or national interest actions that require an earlier effective time or date.

2. Editorial changes.

3. 700-foot floor Class E airspace areas that underlie existing 1,200-foot Class E airspace areas.

4. Actions that lessen the burden on the public (e.g., revocation of restricted areas).

5. Class B and C airspace areas shall be made effective on days that coincide with the appropriate sectional aeronautical charting dates.

b. Cutoff dates are established to allow sufficient time for charting and chart distribution purposes. Rules should be signed on or before the applicable cutoff date.

2-5-7. PUBLICATION IN FEDERAL REGISTER

An original Notice of Proposed Rulemaking (NPRM) and three copies, or an original final rule and seven copies shall be forwarded to AGC-200 for publication in the Federal Register.

2-5-8. DISTRIBUTION

Distribution of airspace dockets (NPRMs and final rules) shall be consistent with the procedures set forth in Order 1720.18, FAA Distribution System.

Section 6. PROCESSING NONRULEMAKING AIRSPACE ACTIONS

2-6-l. PURPOSE

This section prescribes procedures to be followed when establishing, modifying, or revoking nonrulemaking airspace (e.g., Military Operations Area; warning areas; etc.).

2-6-2. IDENTIFICATION

Identify nonrulemaking cases by a study number that includes the last two digits of the calendar year; the abbreviation of the appropriate regional or airports district office; a consecutively assigned number within each calendar year; and "NR" (non-rulemaking), "NRA" (nonrulemaking airport), or "OE" (obstruction evaluation) as appropriate.

Examples-

1. 00-AWP-l-NR for studies involving navigational aids and nonrulemaking Special Use Airspace (SUA) cases (i.e., Alert Areas, Controlled Firing Areas, MOAs, and Warning Areas).

2. 00-ASO- l-NRA for studies involving airports.

3. OO-AGL-l-OE for studies involving surface structures.

4. 00-ORL-l-NRA for studies processed by an airports district office.

2-6-3. CIRCULARIZATION

a. Except for NRA airspace proposals, nonrulemaking airspace proposals shall be circularized by the regional ATD unless procedures for processing particular types of proposals allow exemptions to circularization. Each notice shall contain a complete, detailed description of the proposal including charts, if appropriate, that will assist interested persons in preparing comments. Circularization lists shall include, but not be limited to, all known aviation interested persons and groups, such as the state aviation agencies; regional military representatives; national and local offices of aviation organizations; local flight schools, local airport owners, managers, and fixed base operators; and local air taxi and charter flight offices. Normally, a 45-day comment period should be provided. Other parts in this order contain additional guidance regarding circularization.

b. Identify in the nonrulemaking circular any regulatory changes (e.g., part 71) that will be effected if the nonrulemaking proposal is adopted. Describe the regulatory changes in as much detail as is known at the time (e.g., radials, distances, and coordinates).

c. Regions shall coordinate with their respective state aviation representatives to ascertain which nonrulemaking circulars each state is interested in receiving. If various agencies within a state government request copies of particular circulars, the region may request that one agency be designated to receive and distribute the requested copies.

d. Send one copy of each nonrulemaking circular to ATA-400.

e. Except for Class B and Class C airspace actions, when a nonrulemaking action is ancillary to a rulemaking action, the nonrulemaking proposal may be included in the NPRM. In this instance, a nonrulemaking circularization need not be made. The NPRM will satisfy the circularization requirement and present the full impact of both the rule and nonrule proposal.

2-6-4. CIRCULARIZATION DOCUMENTATION

All notices of aeronautical studies, informal airspace meetings, and determinations issued for obstruction evaluation and airport airspace analysis studies require certificates of mailing. The certificate shall be recorded in each case file as follows:

AERONAUTICAL STUDY [NUMBER] CERTIFICATE OF MAILING I HEREBY CERTIFY THAT A COPY OF THE ATTACHED [notice/determination] WAS MAILED TO EACH OF THE ADDRESSEES LISTED ON THE ATTACHED [mailing list/distribution list number] THIS [date] DAY OF [month/year].

SIGNED: [specialist/mail clerk/etc.]

2-6-5. EFFECTIVE DATE OF NONRULEMAKING ACTIONS

Nonrulemaking actions shall be made effective at 0901 UTC and shall coincide with en route charting dates as furnished by ATA-400. Exceptions are as follows:

a. Safety or national interest actions that require an earlier effective time or date.

b. Editorial changes.

c. Actions that lessen the burden on the public (e.g., revocation of special use airspace).

2-6-6. PUBLICATION OF NONRULEMAKING ACTIONS

Nomulemaking actions are published in the National Flight Data Digest (NFDD) on or before the applicable charting cutoff date.

Section 7. INFORMAL AIRSPACE MEETINGS

2-7-1. PURPOSE

This section prescribes the procedures to be followed for all notices of informal airspace meetings held in advance of rulemaking/ nonrulemaking airspace actions.

2-7-2. POLICY

a. It is the policy of the FAA to hold, if at all practicable, informal airspace meetings to inform the affected users of planned airspace changes. The purpose of these meetings is to gather facts and information relevant to the planned rulemaking or nonrulemaking action being studied.

b. Notwithstanding paragraph 2-7-2a. informal airspace meetings shall be held for any planned changes to Class B and Class C airspace areas prior to issuing an NPRM.

2-7-3. CLASS B AND C AIRSPACE AREAS NOTIFICATION PROCEDURES

a. The regional office shall submit a draft notice of informal airspace meetings to ATA-400 for processing and publication in the Federal Register. The notice shall describe the proposal in sufficient detail, including charts, if necessary, to enable interested persons to prepare comments prior to the meeting. The notice shall identify the name and address of the office where additional information can be obtained.

b. ATA-400 shall process and submit the notice for publication in the Federal Register. For Class B airspace areas, the notice shall be published a maximum of 90 days, and a minimum of 60 days in advance of the meeting.

c. For Class C airspace areas, the notice shall be published a maximum of 60 days, and a minimum of 30 days in advance.

d. In addition to the above, notices of informal airspace meetings shall be sent to all known licensed pilots; state aviation agencies; airport managers/operators; and operators of parachute, sailplane, ultralight, and balloon clubs within a 100-mile radius of the primary airport for Class B airspace actions, and within a 50-mile radius of the primary airport for Class C airspace actions.

e. Distribution of these notices may be accomplished through the facilities of the Airmen Certification Branch, AFS-760. The regional office should coordinate this distribution with the regional Aviation Safety Program Manager. It should be noted that AFS-760 needs a lead-time of 16 days from the receipt of material until mailing. Sufficient lead-time must be provided to allow processing and distribution in time to meet the above minimum advance notice requirements (e.g., 60/30 days).

f. When known or anticipated controversy warrants, the above procedures may also be used for informal airspace meeting notices concerning obstruction evaluation, airport airspace analysis, special use airspace, and the commissioning/ decommissioning of navigational aids.

2-7-4. OTHER AIRSPACE ACTIONS

a. Every effort shall be made to notify all aviation organizations and/or persons that may be affected by, or interested in, the planned action. The meeting notice shall explain that the purpose of the meeting is to solicit aeronautical comments on the proposal's effect on the planned action.

b. The notice shall describe the planned action in sufficient detail, including charts if necessary, to enable interested persons to prepare comments prior to the meeting. Notice of the meeting should be distributed at least 30 days prior to the meeting date.

c. Regional offices are also encouraged to make use of electronic media, local newspapers, radio, and television to supplement the dissemination of notices and information.

2-7-5. LOCATION

Informal airspace meetings should be held at times and locations that are most conducive for gathering facts relative to the planned or proposed action under study. The chairperson

shall represent the Regional Administrator. Each informal airspace meeting should be numbered consecutively and dated, e.g., "Meeting No. 50, February 15, 2000."

2-7-6. AGENDA ITEMS

Agenda items may be included in the notice of informal airspace meeting or distributed separately. Agendas may also include airspace matters of a rulemaking and/or nonrulemaking nature. When not included in the notice of informal airspace meeting, they should be distibuted at least 15 days before the meeting. Agendas involving Class B airspace proposals, shall be distributed at least 30 days prior to the meeting. Items concerning aeronautical studies not on the agenda should not be discussed except when the chairperson considers them appropriate.

2-7-7. RECORD OF MEETINGS

a. Official transcripts or minutes of informal airspace meetings shall not be taken or prepared. However, the chairperson shall prepare a memorandum for each of the discussed aeronautical study files listing attendees and a digest of the discussions held.

b. Written statements received from attendees during **and** after the informal airspace meeting shall also be included in the study files.

c. Forward one copy of the memorandum to ATA-400.

Chapter 3. AERONAUTICAL INFORMATION

Section 1. GENERAL

3-1-1. POLICY

All geographic (latitude and longitude) and vertical data submitted or used in airspace matters shall be based on current North American Datum (NAD) criteria.

3-I-Z. RESPONSIBILITY

a. The Aeronautical Information Division, ATA-100, is responsible for coordination with charting agencies and chart producers.

b. ATA-100 shall furnish appropriate aeronautical chart cutoff and publication dates. Cutoff dates are 9 weeks (10 weeks for action involving flight check) in advance of the publication date to allow sufficient time for charting and chart distribution purposes.

c. Any information pertinent to the development of aeronautical information (e.g., geographic positions, true radials, etc.) shall be obtained from ATA-100.

3-I-3. TRUE/MAGNETIC DIRECTIONS

All radials, courses, and bearings specified in an NPRM shall be stated both as true and magnetic, except magnetic need not be stated in terminal airspace notices.

3-I-4. NAVIGATIONAL AID COORDINATES

When a navigational aid (NAVAID) is used as a reference point in a controlled airspace description its geographic coordinates shall be included in degrees, minutes, and seconds.

3-1-5. DIRECTIONS

Directions shall be described as follows:

338°True - 022°True	= North
023°True - 067°True	= Northeast
068°True - 112°True	= East
113°True - 157°True	= Southeast
158°True - 202°True	= South
203°True - 247°True	= Southwest
248°True - 292°True	= West
293°True - 337°True	= Northwest

Section 3. NAMING OF NAVAIDs, AERONAUTICAL FACILITIES, AND FIXES

3-3-1. GENERAL

a. All fixes located at a common point shall have the same name/code regardless of type, altitude, or route structure.

b. If one of the collocated fixes is a NAVAID, the other fixes shall be assigned the same name and three-letter identifier.

3-3-2. RESPONSIBILITY

a. Regional ATD are responsible for assigning and changing names of NAVAID and aeronautical facilities, and shall follow the instructions contained herein and in Order 7350.7, Location Identifiers, Chapter 1.

b. The Aeronautical Information Division, ATA-100, is responsible for issuing five-letter names for radio fixes, waypoints, marker beacons, and compass locators. Five-letter names shall be issued by ATA-100 to the National Flight Procedures Office (AVN- 100), Major Military Commands (MAJCOM) and Air Route Traffic Control Centers (ARTCC) for future assignments.

c. ATA-100, in conjunction with the respective regional ATD, shall ensure that no duplication in location names exist.

3-3-3. NAMING OF NAVAIDs

a. The NAVAID name selected should represent a city, town, or prominent geographic landmark that is depicted on a sectional aeronautical chart at or near the site. If one is neither available nor suitable, a local memorial name may be used. A common, easily understood word should be selected for the NAVAID name.

b. The name shall not sound similar to an existing NAVAID/fix location name within the originating ARTCC's area, the adjacent ARTCC's area, or within a 300 NM radius from the NAVAID involved.

c. Unduly long names should not be used.

d. A navigational aid with the same name as the associated airport should be located on that airport. However, in existing situations, a NAVAID off the airport with the same name as the airport may retain the airport name provided there is no other NAVAID with the same name. If retention of the airport name at an off-airport NAVAID could lead to a potentially confusing situation, the name should be changed. Only one NAVAID located on the airport may. be assigned the airport name.

NOTE-
For the purpose of this paragraph only, a compass locator shall be considered as a separate NAVAID.

e. Instrument Landing Systems (ILS).

1. Inner/middle fan markers (without collocated nondirectional radio beacons, NDBs, or compass locators) and localizer equipment are not normally assigned names. Localizers are identified with the associated airport name and applicable runway number in official writings.

2. All outer markers shall be assigned names/codes. If the outer marker is to be situated at the same geographic location as a fix, it shall adopt the fix names/code.

3. All outer compass locators (LOM) and middle compass locators (LMM) shall be assigned names/codes. If co-located with a f-ix, they shall also adopt the fix name/code.

f. Names/codes assigned shall be the "chart names" that will appear on aeronautical charts, in airspace dockets, and other official publications and records.

3-3-4. NAMING OF WAYPOINTS, INTERSECTIONS, AND DME FIXES

a. To decide whether a fur needs to be named, see Order 8260.19, Flight Procedures and Airspace.

b. Names assigned for waypoints, intersections, Air Traffic Control (ATC) coordination, and Distance Measuring Equipment (DME) fixes not co-located with a navigational aid shall consist of a single five-letter pronounceable name. These five letters shall serve as the name, identifier, and computer code.

c. Regional requests for specific five-letter names for radio fixes and waypoints should be avoided, but may be granted by ATA-100 if feasible.

d. Five-letter names that are assigned by AVN-100 and major commands will be coordinated with the associated ARTCC to preclude similar sounding fix names.

e. ATA-100 shall not duplicate any radio fix, waypoint, marker beacon, or compass locator names.

Section 2. FAA NAVAIDs

4-2-I. POLICY

a. Site locations for the establishment or relocation of NAVAIDs require approval by the appropriate regional Airway Facilities, FPO, Air Traffic, Airports, and Flight Standards Divisions.

b. The regional Airway Facilities' airspace focal point shall request the appropriate regional ATD to initiate a nonrulemaking study of the selected site.

c. The Airway Facilities Division must concur with the site location before the request for study is made.

4-2-2. COORDINATION

The regional ATD shall coordinate the proposed site with ATA- 100, FPO, Flight Standards and Airports Divisions, as well as affected air traffic control facilities. The NAVAIDs purpose must be considered and, as appropriate, a preliminary decision made regarding:

a. The establishment of instrument procedures;

b . Airways/routes;

c. Designation of controlled airspace;

d. The ability to provide essential air traffic services;

e. The effect of the site on facility performance; and

f. The effect on the location or configuration of an airport. If all offices agree with the selected site, then the regional ATD should circularize the proposal, as determined necessary, for comment from the aviation community.

4-2-3. INFORMAL AIRSPACE MEETINGS

Convene an informal airspace meeting in accordance with the procedures detailed in Chapter 2, Section 7, of this order. Informal airspace meetings may not be practical for time critical changes or in those cases where delay will adversely affect aviation safety. At such meetings, agency representatives should explain the planned use of the NAVAIDs, including instrument approaches or other terminal procedures or airspace planning, and any action will be subsequently handled by airspace rulemaking procedures. However, care should be taken that the agency's ex parte policy is not violated during these informal proceedings.

4-2-4. APPROVAL AUTHORITY

The regional ATD is responsible for coordination and final approval or disapproval of sites selected for installation of en route NAVAIDs. The regional FPO is responsible for coordination and final approval or disapproval of sites selected for installation of terminal NAVAIDs. The approval or disapproval determination shall be issued by memorandum to the appropriate Airway Facilities Division. Any disapproval issued shall include the reasons why a site is not acceptable. Agency personnel are reminded that en route site approval does not constitute approval of instrument approach procedures, or controlled airspace planning to be processed under a rulemaking action.

4-2-5. DISTRIBUTION

The regional ATD shall distribute a copy of the approval or disapproval determination to all FAA offices that participated in the site study and to ARN-1.

4-2-6. COMMISSIONING DATE

The responsible regional Airway Facilities Division is authorized to proceed with installation of the NAVAID upon receipt of the site approval. As soon as possible thereafter, an estimated date of commissioning shall be agreed upon by the ATD, FPO, Airway Facilities, and any other concerned FAA offices. To the extent possible, the date of commissioning shall coincide with the associated aeronautical charting dates.

4-2-7. PROCESSING REGULATORY ACTIONS

The FPO shall process the necessary instrument procedures and the regional ATD shall process airspace rulemaking actions to be effective with the associated aeronautical charting date.

Section 5. DISCONTINUANCE OF FAA NAVAIDs

4-5-I. POLICY

Operational requirements, air traffic demand, and budgetary limitations are normally the basis for the retention or decommissioning of FAA NAVAIDs. Since economics are a necessary. consideration, a NAVAID becomes a candidate for decommissioning when the activity level, or factors other than activity level on which it may have been justified, are eliminated or changed significantly. Discontinuance criteria are contained in the appropriate Airway Planning Standards (Orders 703 1.2, Terminal, and 703 1.3, En Route). Any discontinuance should be in accordance with the Federal Radio Navigation Plan.

4-5-2. RESPONSIBILITIES

a. The Air Traffic Service (ATS) shall ensure that FAA-funded NAVAIDs are allocated so that they benefit the greatest number of users consistent with safety and operational efficiency. The regional ATD shall also evaluate the need for the retention of en route NAVAIDs and recommend candidates for decommissioning when their need can no longer be justified.

b. The FPO shall ensure that FAA-funded NAVAIDs are allocated so that they benefit the greatest number of users consistent with safety and operational efficiency. The FPO shall also evaluate the need for the retention of terminal NAVAIDs and recommend candidates for decommissioning when their need can no longer be justified.

c. ARN-1 shall recommend navigational facilities to the Program Director for Air Traffic Airspace Management as candidates for decommissioning when their function can be equally or better provided by more economically efficient alternatives.

4-5-3. COORDINATION OF PROPOSALS

A navigational facility selected for decommissioning shall be the subject of a nonrulemaking study. The appropriate regional ATD shall coordinate the proposed action with personnel from the regional Airway Facilities Division, FPO, Airports Division, Flight Standards Division, and the regional military representative. If all concur, the regional ATD shall circularize the proposed decommissioning to all interested persons for comment. Include in the circularization a brief description of the decommissioning effect ‘on airspace and instrument procedures.

NOTE-
Advanced coordination should be accomplished with Transport Canada regarding facilities that would affect transborder operations. This coordination may be handled through headquarters, regional offices, or direct facility to facility.

4-5-4. OBTAINING APPROVAL

In accordance with Order 1100.1, FAA Organization - Policies and Standards, Paragraph 15, certain closings, consolidations, and decommissionings may require approval of the Administrator. Upon completion of the nonrulemaking study, if applicable, the appropriate regional office shall forward the study with a summary of comments and a recommendation to the Administrator through the concerned office or service.

4-5-5. DISCONTINUANCE ACTION

Delay initiating steps for discontinuance of a navigational facility that requires approval from the Office of the Administrator until ten working days after receipt of such approval.

4-5-6. CANCELLATION OF CONTROLLED AIRSPACE AND INSTRUMENT PROCEDURES

The appropriate Air Traffic office shall ensure that the designated airspace based on the NAVAID is revoked or modified. The Flight Procedures Office shall coordinate the cancellation of any instrument approach procedure predicated on that NAVAID before the decommissioning date.

4-5-7. DECOMMISSIONING DATE

To the extent possible, the date of decommissioning should coincide with the associated aeronautical charting dates.

4-5-8. DISCONTINUANCE OF NAVAIDs INCLUDED IN ICAO PLANS

To meet the operational requirements of United States and foreign aircraft, certain United States NAVAIDs are included in the Caribbean, North Atlantic, and Pacific Regional Air Navigation Plans of the International Civil Aviation Organization (ICAO). By international agreement, amendments to these plans cannot be made until the necessary coordination is effected through ICAO with all interested contracting states and international organizations.

4-5-9. INTERNATIONAL STAFF NOTIFICATION

The Air Traffic Service International Staff, AAT-30, is the liaison on international issues between the FAA, and U.S. Government elements and international organizations. Before action is initiated to discontinue any NAVAID included in an ICAO Air Navigation Plan, the appropriate air traffic office shall notify AAT-30 of the proposed action. Notification shall be made at least 90 days before the proposed effective date.

Section 2. NOTICES

5-2-I. REQUIREMENTS

a. Requirements for notifying the FAA of proposed construction or alteration are contained in Sections 77.13 (see FIG 5-2-1, FIG 5-2-2, FIG 5-2-3, and FIG 5-2-4) and 77.15. Advisory Circular 70/7460-2, Proposed Construction of Objects that May Affect the Navigable Airspace, provides the public guidance on the application of these notice requirements.

b. No notice is required, as specified in Section 77.15(c), for certain equipment installations "of a type approved by the Administrator" when the equipment is installed in accordance with the established FAA siting criteria. Equipment installed in compliance with the siting criteria without waivers and which does not affect other runways, does not have to be considered under part 77 criteria.

c. Examples of equipment not requiring notice are:

1. Wind equipment (except supplemental wind cones);

2. Transmissometers (Runway Visibility Value (RW) and Runway Visual Range (RVR) equipment);

3. Instrument Landing Systems (ILS); and

4. Visual Glide Slope Indicators (VGSI).

5-2-2. PROCESSING

a. Air Traffic personnel shall administer obstruction evaluation studies with the coordinated assistance of Airports, Airway Facilities, Frequency Management, Flight Standards, FPO, and military representatives.

b. The regional ATD shall process notices received under the provisions of Sections 447 18 and part 77 as OE cases. The exception to this is notices received under those provisions that pertain to structures located on a public-use airport which shall be processed by the Airports Division as a nonrulemaking airport (NRA) case. (Defined in Part 3, Airport Airspace Analysis, of this order). However, if the notice pertains to a temporary structure or a structure that radiates a frequency, the Airports Division may request that Air Traffic process the notice as an OE case.

c. If notice is required by any other FAA regulation, the appropriate division shall process the notice under that regulation.

5-2-3. FAA FORMS

Standard FAA forms are established for use in conducting obstruction evaluation studies. The standard FAA forms are:

a. FAA FORM 7460-1, Notice of Proposed Construction or Alteration (OE notice).

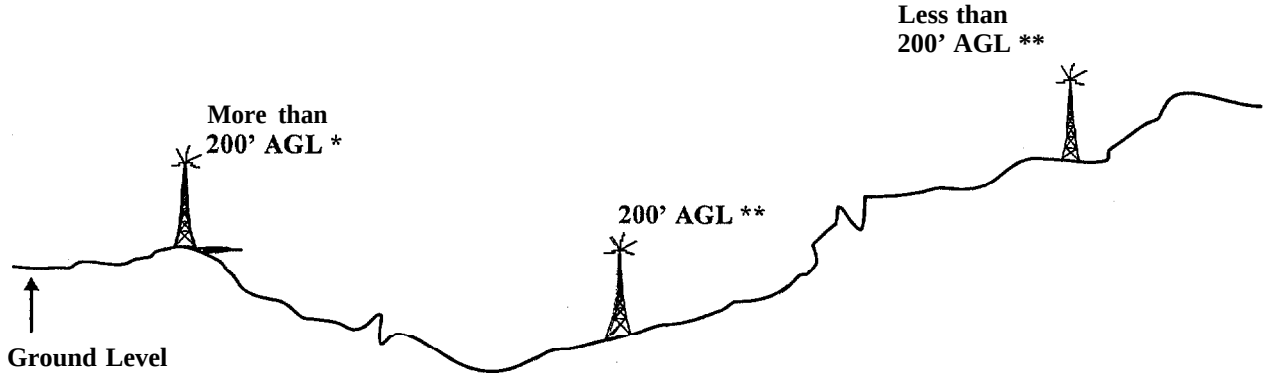
b. FAA FORM 7460-2, Notice of Actual Construction or Alteration (Supplemental Notice).

c. FAA FORM 7460-6, Obstruction Evaluation Worksheet.

NOTICE OF CONSTRUCTION OR ALTERATION

§77.13(a)(1) - A notice is required for any proposed construction or alteration that would be more than 200 feet in height above the ground level at its site.

§77.13(a)(1) - Notice Requirement Anywhere

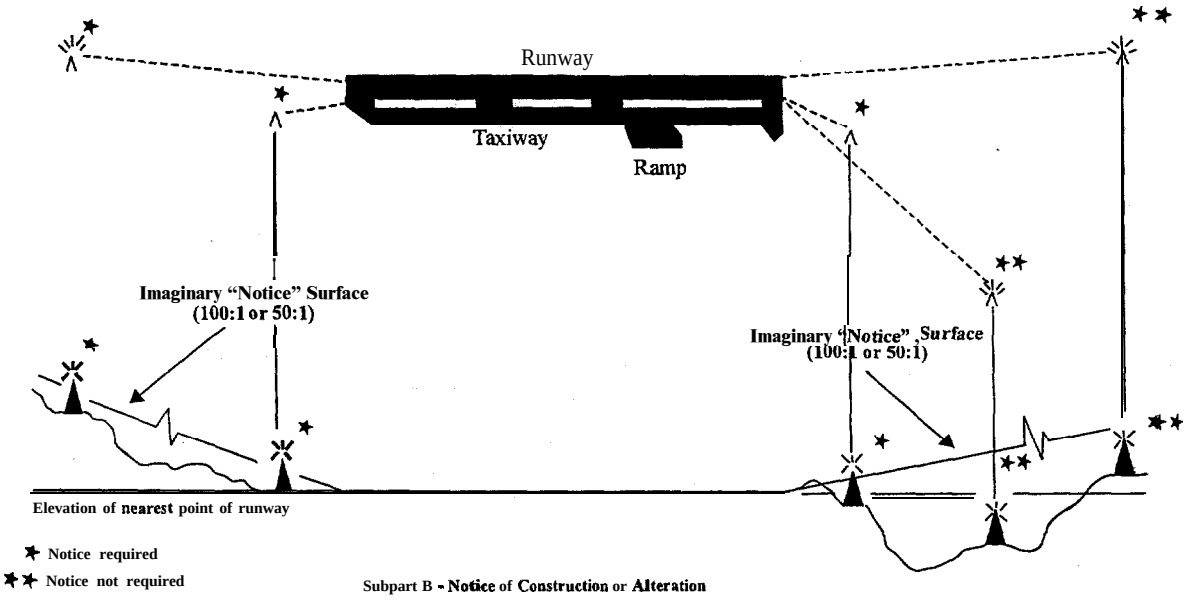


*** Notice Required**

**** Notice Not Required**

FIG 5-2-l

NOTICE REQUIREMENT RELATED TO AIRPORTS



NOTE:
Each airport must be available for public use and listed in the Airport/Facility Directory, or in either the Alaska or Pacific Chart Supplement; or a planned or proposed airport or an airport under construction and the subject of a notice or proposal on file with the FAA, and except for Military airports, it is clearly indicated that airport will be available for public use, or operated by an armed force of the United States. (Heliports and seaplane bases without specified boundaries are excluded.)

§77.13(a)(2) - A notice is required for any proposed construction or alteration that would be of greater height than an imaginary surface extending outward and upward at one of the following slopes -

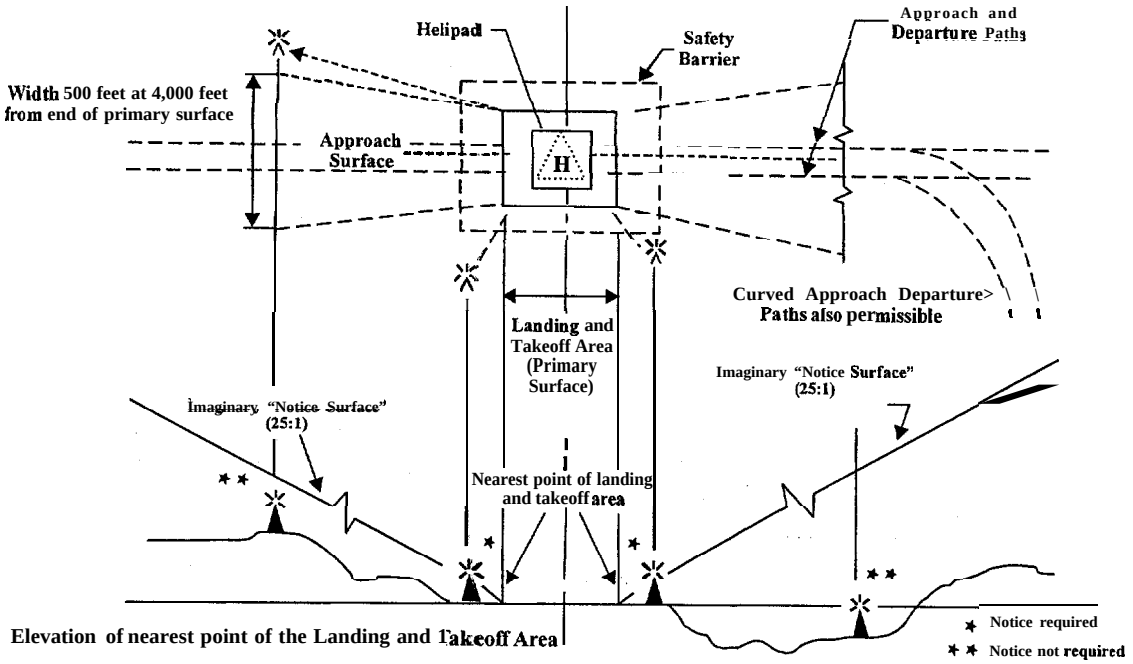
(i) 100 to 1 for a horizontal distance of 20,000 feet from the nearest runway of each airport with at least one runway more than 3,200 feet in actual length.

(ii) 50 to 1 for a horizontal distance of 10,000 feet from the nearest point of the nearest runway of each airport with its Longest runway no more than 3,200 feet in actual length.

(Note: §77.13(a)(5) requires notice: of any proposed construction or alteration on each airport, including heliports)

FIG 5-2-2

NOTICE REQUIREMENT RELATED TO HELIPORTS



Subpart B - Notice of Construction or Alteration

§77.13(a)(2) - A notice is required for any proposed construction or alteration that would be of greater height than an imaginary surface extending outward and upward at the following slope:

(iii) 25 to 1 for a horizontal distance of 5,000 feet from the nearest landing and takeoff area of each heliport, available for public use listed in the Airport/Facility Directory or in either the Alaska or Pacific Chart Supplement; is under construction and is the subject of a notice of proposal on file with the FAA and except for military heliports, it is clearly indicated that heliport will be available for public use, or operated by a Federal Military agency.

FIG 5-2-3

Section 3. IDENTIFYING/EVALUATING AERONAUTICAL EFFECT

6-3-1. POLICY

a. The prime objective of the FAA in conducting OE studies is to ensure the safety of air navigation and efficient utilization of navigable airspace by aircraft. There are varied demands being placed on the use of the navigable airspace. However, when conflicts arise concerning a structure being studied, the FAA emphasizes the need for conserving the navigable airspace for aircraft; preserving the integrity of the national airspace system; and protecting air navigation facilities from either electromagnetic or physical encroachments that would preclude normal operation.

b. In the case of such a conflicting demand for the airspace by a proposed construction or alteration, the first consideration should be given to altering the proposal.

c. In the case of an existing structure, first consideration should be given to adjusting the aviation procedures to accommodate the structure. This does not preclude issuing a "Determination Of Hazard To Air Navigation" on an existing structure, when the needed adjustment of aviation procedures **could** not be accomplished without a substantial adverse effect on aeronautical operations. In all cases, consideration should be given to all known plans on file received by the end of the public comment period or before issuance of a determination if the case was not circularized.

6-3-2. SCOPE

Part 77 establishes standards for determining obstructions to air navigation. A structure that exceeds one or more of these standards is presumed to be a hazard to air navigation unless the obstruction evaluation study determines otherwise. An obstruction evaluation study shall identify:

a. The effect the proposal would have:

1. On existing and proposed public-use and military airports and/or aeronautical facilities.

2. On existing and proposed visual flight rule (VFR)/instrument flight rule (IFR) aeronautical departures; arrival and en route operations; procedures; and minimum flight **altitudes.**

3. Regarding physical, electromagnetic, or line-of-sight interference on existing or proposed air navigation, communication, radar, and control systems facilities.

4. On airport capacity, as well as the cumulative impact resulting from **the** structure when combined with the impact of other existing or proposed structures.

b. Whether marking and/or lighting is necessary.

6-3-3. DETERMINING ADVERSE EFFECT

A structure is considered to have an adverse aeronautical effect if it first exceeds the obstruction standards of part 77, and/or is found to have a physical **or** electromagnetic radiation effect on the operation of air navigation facilities. A proposed or existing structure, if not amended, altered, or removed, has an adverse effect if it would:

a. Require a change to an existing or planned IFR minimum flight altitude, a published or special instrument procedure, or an IFR departure procedure for a public-use airport.

b. Require a VFR operation, to change its regular flight course or altitude. This does not apply to VFR military training route (VR) operations conducted under part 137, or operations conducted under a waiver or exemption to the CFR.

c. Restrict the clear view of runways, helipads, taxiways, or traffic patterns from the airport traffic control tower cab.

d. Derogate airport capacity/efficiency.

e. Affect future VFR and/or IFR operations as indicated by plans on file.

f. Affect the usable length of an existing or planned runway.

6-3-4. DETERMINING SIGNIFICANT VOLUME OF ACTIVITY

The type of activity must be considered in reaching a decision on the question of what volume of aeronautical activity is "significant." For example, if one or more aeronautical operations per day would be affected, this would indicate regular and continuing activity, thus a significant volume, no matter what the type of operation. However, an affected instrument procedure or minimum altitude may need to be used only an average of once a week to be considered significant if the procedure is one which serves as the primary procedure under certain conditions.

6-3-5. SUBSTANTIAL ADVERSE EFFECT

A proposed structure would have, or an existing structure has, a substantial adverse effect if it causes electromagnetic interference to the operation of an air navigation facility or the signal used by aircraft, or if there is a combination of:

a. Adverse effect as described in paragraph 6-3-3; and

b. A significant volume of aeronautical operations would be affected, as described in paragraph 6-3-4.

6-3-6. RESPONSIBILITY

The FAA's obstruction evaluation program transcends organizational lines. In order to determine the effect of the structure within the required notice period, each office should forward the results of its evaluation within 10 working days to the regional ATD for further processing. Areas of responsibility are delegated as follows:

a. Regional ATD personnel shall:

1. Identify when the structure exceeds Section 77.23 (a)(l) (see FIG 6-3-l) and apply Section 77.23(b) (see FIG 5-2-4).

2. Identify the effect on existing and planned aeronautical operations, air traffic control procedures, and airport traffic patterns; and make recommendations for mitigating adverse effect including marking and lighting recommendations.

3. Identify when the structure would adversely effect published helicopter route operations, as specified in paragraph 6-3-S subparagraph e., of this order, and forward the case to Flight Standards.

4. Identify whether obstruction marking/lighting is necessary and recommend the appropriate marking and/or lighting.

5. Identify when negotiations are necessary, and conduct negotiations with the sponsor. This may be done in conjunction with assistance from other division personnel when their subject expertise is required (e.g., in cases of electromagnetic interference).

6. Identify when circularization is necessary and conduct the required circularization process.

7. Evaluate all valid aeronautical comments received as a result of the circularization, and those received as a result of the division evaluation.

8. Issue the determination (except as noted in paragraph 7- 1-2, subparagraph b).

NOTE-
See Note under b, below.

b. Regional Airports Division personnel shall:

1. Verify that the airport/runway database has been reviewed, is correct, and contains all plans on file pertaining to the OE case.

2. Identify the structure's effect on existing and planned airports, or improvements to airports concerning airport design criteria including potential restrictions/impacts on airport operations; capacity; efficiency and development; and recommendations for eliminating adverse effect. Airports Divisions are not required to perform evaluations on OE cases that are further than 3 NM from the Airport Reference Point (ARP) of a public-use or military airport.

3. Identify when the structure exceeds Sections 77.23 (a)(2), 77.23 (a)(5), 77.25, 77.28, and 77.29 (See FIG 6-3-2, FIG 6-3-3, FIG 6-3-4, FIG 6-3-5, FIG 6-3-6, FIG 6-3-7, and FIG 6-3-8).

4. Determine the effect on the efficient use of airports and the safety of persons and property on the ground. Airports will resist structures and activities that conflict with an airport's planning, design, and/or recommendations from other divisions.

NOTE-
Regional ATD personnel shall perform the automated part 77 obstruction criteria analysis when the automation program is available and the airport/runway database is appropriately maintained and updated by the Airports Division. To ensure that all changes the Airports Division may have made to the airport/runway database are considered and reflected in the study, AT personnel shall perform the "run/rerun," the automated part 77 obstruction criteria analysis before issuing the determination. However, due to limited availability of runway spot elevations, the automated analysis of the primary and transition surfaces abeam the runway should be performed manually when spot elevations differ significantly from threshold elevations.

c. FPO personnel shall:

1. Identify when the structure exceeds Sections 77.23(a)(3), and 77.23(a)(4).

2. Identify the effect upon terminal area IFR operations, including transitions; radar vectoring; holding; instrument departure procedures; any segment of a standard instrument approach procedure (SIAP), including proposed instrument procedures and departure areas; and making recommendations for eliminating adverse effect.

3. Identify the effect on minimum en route altitudes (MEA); minimum obstruction clearance altitudes (MOCA); minimum vectoring altitudes (MVA); minimum IFR altitudes (MIA); minimum safe altitudes (MSA); minimum crossing altitudes (MCA); minimum holding altitudes (MHA); turning areas and termination areas; and making recommendations for eliminating adverse effect.

4. Coordinate with Air Traffic and Airway Facilities personnel to determine the effect of any interference with an air navigation facility on any terminal or en route procedure.

5. State what adjustments can be made to the procedure/structure to mitigate or eliminate any adverse effects of the structure on an instrument flight procedure.

NOTE-
While AVN is responsible. they may use a contractor or contractors to accomplish all or part of these duties.

d. Regional Flight Standards personnel shall identify the effect on fixed-wing and helicopter VFR routes, terminal operations, and other concentrations of VFR traffic. When requested by Air Traffic, the Flight Standards Division shall also evaluate the mitigation of adverse effect on VFR operations for marking and/or lighting of structures.

e. Airway Facilities personnel shall identify any electromagnetic and/or physical effect on air navigation and communications facilities including:

1. The presence of any electromagnetic effect in the frequency protected service volume of the facilities shown in FIG 6-3-18, FIG 6-3-19, and FIG 6-3-20. I

2. The effect on the availability or quality of navigational or communications signals to or from aircraft including lighting systems (e.g., VGSI), and making recommendations to eliminate adverse effect.

3. The effect on ground-based communications and NAVAID equipment, and the signal paths between ground-based and airborne equipment, and making recommendations to eliminate adverse effect. ,

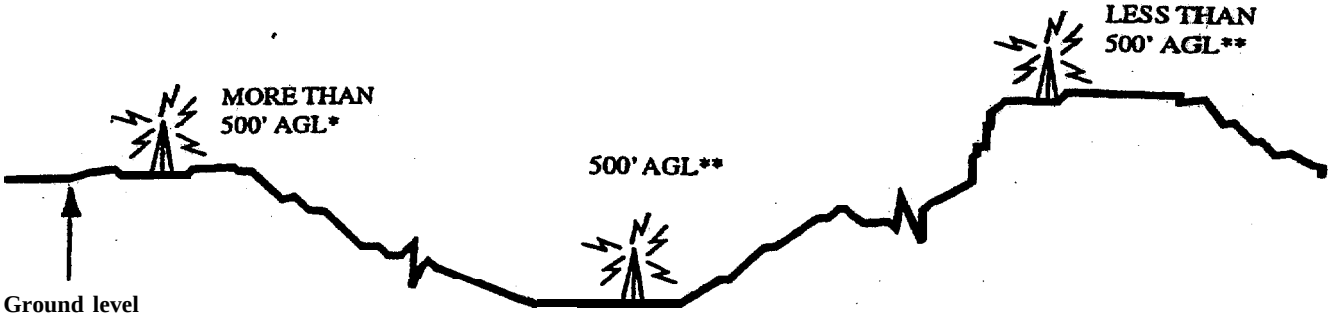
4. The effect on the availability or quality of ground-based primary and secondary radar; direction finders; and air traffic control tower line-of-sight visibility; and making recommendations to eliminate adverse effect.

5. The effect of sunlight or artificial light reflections, and making recommendations to eliminate adverse effect.

f. Military personnel are responsible for evaluating the effect on airspace and routes used by the military.

g. Other applicable FAA offices or services may be requested to provide an evaluation of the structure on a case-by-case basis.

ANYWHERE



* Obstruction to Air Navigation
** Not an Obstruction to Air Navigation

Subpart C - Obstruction Standards
§77.23(a)(1) - An object **would be an** obstruction to air navigation if of greater height than 500 feet **above** ground **level** at its site.

FIG 6-3-1

NEARAIRPORTS

Subpart C - Obstruction Standards
§77.23(a)(2) - An object would be an obstruction to air navigation if of greater height than 200 feet above ground at the site, or above the established airport elevation, whichever is higher -
(a) within 3 NM of the established reference point of an airport with its longest runway more than 3,200 feet in actual length, and
(b) that height increases in proportion of 100 feet for each additional nautical mile from the airport reference point up to a maximum of 500 feet.
Note: Heliports excluded.

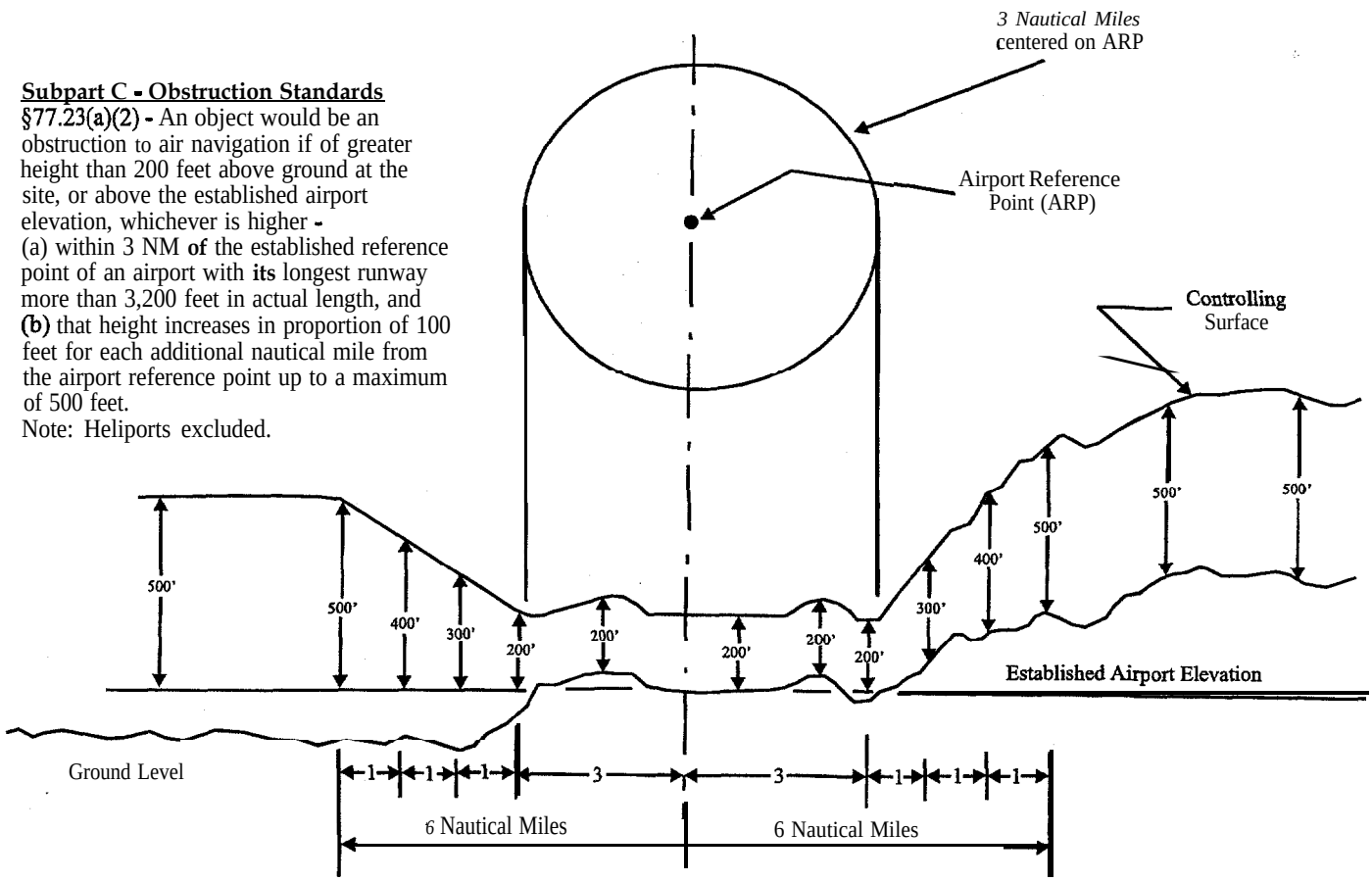
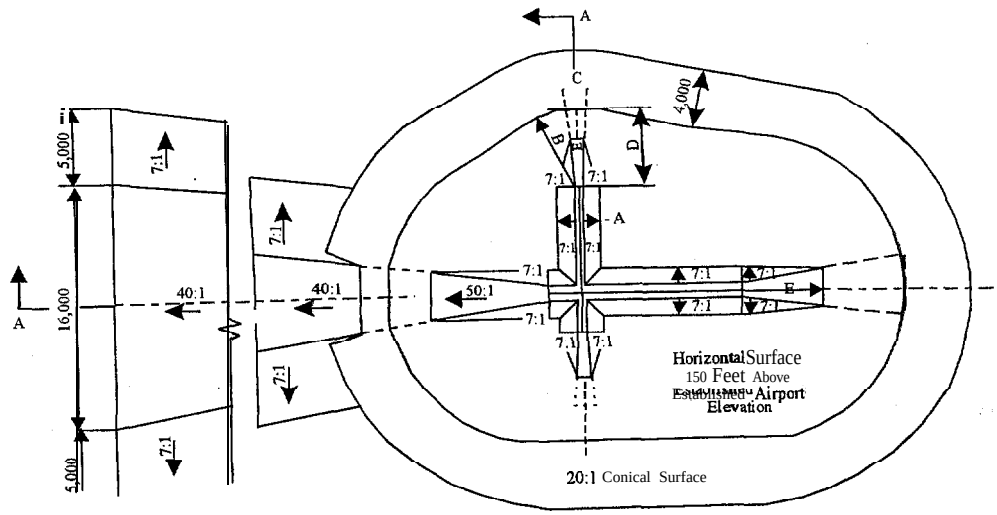


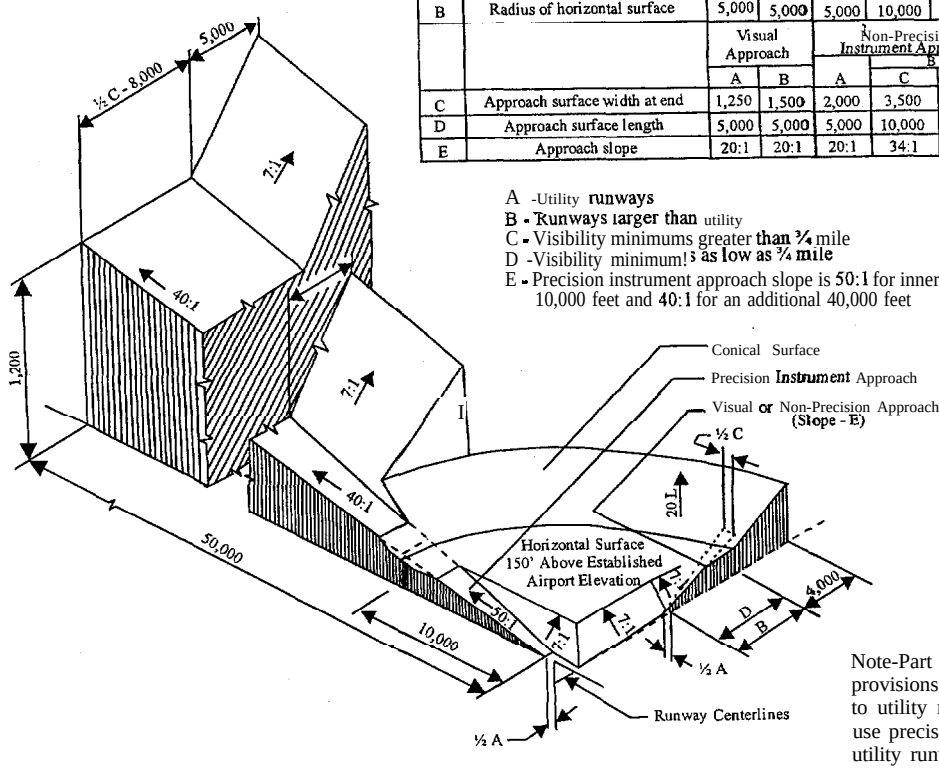
FIG 6-3-2

CIVILIAN AIRPORT IMAGINARY SURFACES



DIM	ITEM	Dimensional Standards (Feet)					
		Visual Runway		Non-Precision Instrument Runway			Precision Instrument Runway
		A	B	A	B C	B D	
A	Width of primary surface and approach surface width at inner end	250	500	500	500	1,000	1,000
B	Radius of horizontal surface	5,000	5,000	5,000	10,000	10,000	10,000
		Visual Approach		Non-Precision Instrument Approach			Precision Instrument Approach
		A	B	A	B C	B D	
C	Approach surface width at end	1,250	1,500	2,000	3,500	4,000	16,000
D	Approach surface length	5,000	5,000	5,000	10,000	10,000	*
E	Approach slope	20:1	20:1	20:1	34:1	34:1	*

A -Utility runways
B - Runways larger than utility
C - Visibility minimums greater than ¾ mile
D -Visibility minimums as low as ¾ mile
E - Precision instrument approach slope is 50:1 for inner 10,000 feet and 40:1 for an additional 40,000 feet



Note-Part 77.25 does not make provisions for precision approaches to utility runways. In these situations, use precision standards for other than utility runways to develop the primary, approach, and transition surfaces.

Isometric View of Section A - A

FIG 6-3-3

AIRPORT IMAGINARY SURFACES FOR HELIPORTS

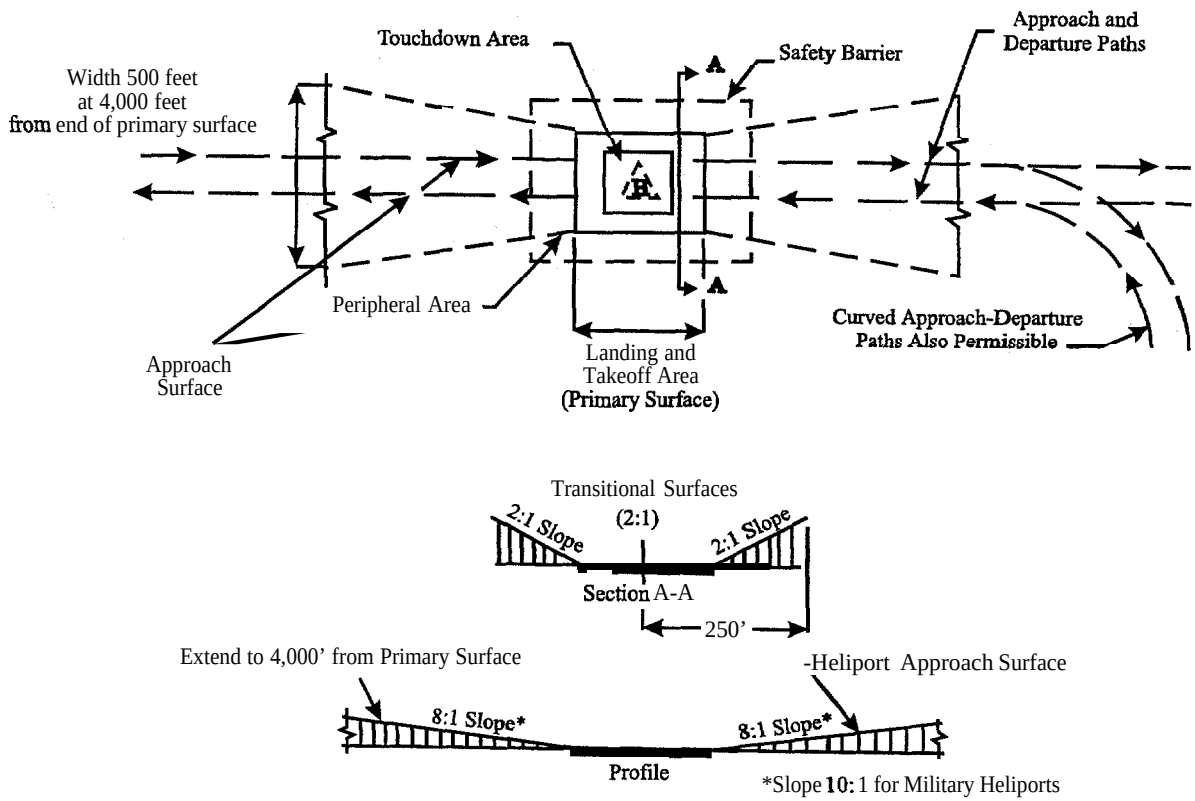


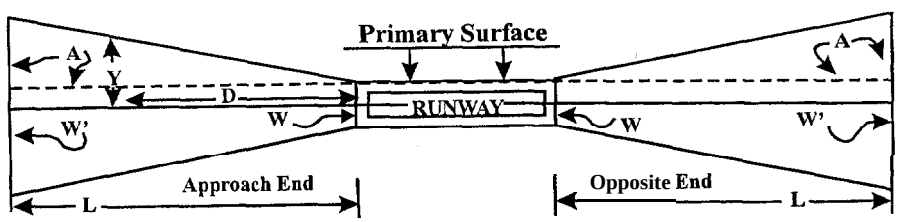
FIG 6-3-8

FAR PART 77, APPROACH SURFACE DATA

RUNWAY TYPE	RWY USE AVAILABLE/PLANNED APPROACH/OPPOSITE RUNWAY END COMBINATIONS		APPROACH SURFACE DIMENSIONS LENGTH L	INNER WIDTH - W	OUTER WIDTH - W'	SLOPES AND FLARE RATIOS SLOPE RATIO	FLARE RATIO - A
UTILITY RUNWAYS	V		5,000	250	1,250	20:1	.1:1
		V	5,000	250	1,250	20:1	.1:1
	V		5,000	500	1,250	20:1	.075:1
		NP	5,000	500	2,000	20:1	.15:1
	NP		5,000	500	2,000	20:1	.15:1
		NP	5,000	500	2,000	20:1	.15:1
OTHER THAN UTILITY RUNWAYS	V		5,000	500	1,500	20:1	.1:1
		V	5,000	500	1,500	20:1	.1:1
	V		5,000	500	1,500	20:1	.1:1
		NP ¾+	10,000	500	3,500	34:1	.15:1
	V		5,000	1,000	1,500	20:1	.05:1
		NP ¾	10,000	1,000	4,000	34:1	.15:1
	V		5,000	1,000	1,500	20:1	.05:1
		P	50,000	1,000	16,000	50:1/40:1	.15:1
	NP ¾+		10,000	1,000	3,500	34:1	.15:1
		NP ¾+	10,000	500	3,500	34:1	.15:1
	NP ¾+		10,000	1,000	3,500	34:1	.125:1
		NP ¾	10,000	1,000	4,000	34:1	.15:1
	NP ¾+		10,000	1,000	3,500	34:1	.125:1
		P	50,000	1,000	16,000	50:1/40:1	.15:1
	NP ¾		10,000	1,000	4,000	34:1	.15:1
		NP ¾	10,000	1,000	4,000	34:1	.15:1
	NP ¾		10,000	1,000	4,000	34:1	.15:1
		P	50,000	1,000	16,000	50:1/40:1	.15:1
	P		50,000	1,000	16,000	50:1/40:1	.15:1
		P	50,000	1,000	16,000	50:1/40:1	.15:1

V - Visual NP - Nonprecision P - Precision %+-Visibility Minimums More Than ¾ SM ¾ -Visibility Minimums As Low As ¾ SM

EXAMPLE



Sample Use Problem: Proposed structure would be located by measurement to be 20,000 feet from the end of the primary surface and 3,400 feet at 90° from the extended centerline of a precision runway (Refer to Section 77.21(b) for relation of primary surface to end of runway). To determine whether it would fall within the approach surface of that runway, apply the following formula

$$Y = D \times A + \frac{W}{2}$$

Y = distance for runway centerline to edge of the approach

D = distance from end of primary surface at which proposed construction is 90° from extended runway centerline

$Y = 20{,}000 \times 15 + \frac{1{,}000}{2}$ $Y = 3{,}000 + 500$ Y = 3,500 (structure would be within approach surface)

FIG 6-3-9

6-3-7. AIRPORT SURFACES AND CLEARANCE AREAS

a. CIVIL AIRPORT SURFACES

1. Civil airport imaginary surfaces are defined in Section 77.25 and are based on the category of each runway according to the type of approach (visual, nonprecision, or precision) available or planned for each runway end (see FIG 6-3-3). The appropriate runway imaginary surface shall be applied to the primary surfaces related to the physical end of the specific runway surface that is usable for either takeoff or landing.

2. Approach Surface Elevation - Use the runway centerline elevation at the runway threshold and the elevation of the helipad as the elevation from which the approach surface begins (see Sections 77.25 and 77.29).

3. Heliport imaginary surfaces are defined in Section 77.29 and are based upon the size of the takeoff and landing area.

4. Planned Airport/Runway Improvements - Consider the planned runway threshold and approach type when there is a plan on file with the FAA, or with an appropriate military service to extend the runway, and/or upgrade its use or type of approach. The existing runway threshold and type of approach may be used for temporary structures/equipment, as appropriate.

b. MILITARY AIRPORT SURFACES - The obstruction standards in Section 77.25, Civil Airport Imaginary Surfaces, apply to civil operated joint-use airports. The obstruction standards in Section 77.28, Military Airport Imaginary Surfaces, are applicable only to airports operated and controlled by a military service of the United States, regardless of whether use by civil aircraft is permitted.

c. TERMINAL OBSTACLE CLEARANCE AREA - The terminal obstacle clearance area specified in Section 77.23(a)(3) includes the initial, intermediate, final, and missed approach segments of an instrument approach procedure, and the circling approach and instrument departure areas. The applicable FAA approach and departure design criteria are contained in the 8260.3 Order series.

d. EN ROUTE OBSTACLE CLEARANCE AREA - The en route obstacle clearance area specified in Section 77.23(a)(4) is applicable when evaluating the effect of a structure on an airway, a feeder route, and/or an approved off-airway route (direct route) as prescribed in the 8260.3 Order series.

6-3-8. EVALUATING EFFECT ON VFR OPERATIONS

a. PURPOSE - These guidelines are for use in determining the effect of structures, whether proposed or existing, upon VFR aeronautical operations in the navigable airspace. The intent of these guidelines is to provide a basis for analytical judgments in evaluating the effect of proposals on VFR operations.

b. CONSIDERATIONS

1. Minimum VFR Flight Altitudes - Minimum VFR flight altitudes are prescribed by regulation. Generally speaking, from a VFR standpoint, the navigable airspace includes all airspace 500 feet AGL or greater and that airspace below 500 feet required for:

(a) Takeoff and landing, including the airport traffic pattern;

(b) Flight over open water and sparsely populated areas (an aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure); and

(c) Helicopter operations when the operation may be conducted without hazard to persons and property on the surface.

2. VFR Weather Minimums - Proposed or existing structures potentially have the greatest impact **in** those areas where VFR operations are conducted when ceiling and/or visibility conditions are at or near VFR weather minimums. Any structure that would interfere with a significant volume of low altitude flights by actually excluding or restricting VFR operations in a specific area would have a substantial adverse effect and may be considered a hazard to air navigation.

3. Marking and/or Lighting of Structures - Not every structure penetrating the navigable airspace is considered to be a hazard to air navigation. Some may be marked and/or lighted so pilots can visually observe and avoid the structures.

4. Shielded Structures - A structure may be "shielded" by being located in proximity to other permanent structures or terrain and would not, by itself, adversely affect aeronautical operations (see paragraph 6-3-13).

5. Height Of Structures - Structures are of concern to pilots during a climb after takeoff, low altitude operations, and when descending to land, Any structure greater than 500 feet AGL, or structures of any height which would affect landing and takeoff operations, requires extensive evaluation to determine the extent of adverse effect *on* VFR aeronautical operations.

6. Airport Traffic Patterns - The primary concern regarding structures in airport traffic pattern areas is whether they would create a dangerous situation during a critical phase of flight.

7. Class B and C Airspace - Structures that exceed obstruction standards in areas available for VFR flight below the floor of Class B or C airspace areas require careful evaluation. Class B and C airspace areas are designed to provide a more regulated environment for IFR and VFR traffic in and around certain airports. Consequently, the floors of some Class B and C areas compress VFR operations into airspace of limited size and minimum altitude availability.

8. VFR Routes - Pilots operating VFR frequently fly routes that follow rivers, coastlines, mountain passes, valleys, and similar types of natural landmarks; or major highways, railroads, powerlines, canals, and other manmade structures. A VFR route may also be comprised of specific radials of a Very High Frequency Omnidirectional Range (VOR). These routes may correspond to an established Federal Airway, direct radials between navigation facilities, or a single radial providing transition to a route predicated on visual aids. While there may be established minimum en route altitudes for segments of these routes and navigation is dependent upon adequate signal reception, a VFR pilot may fly at an altitude below the established minimum altitude in order to maintain visual contact with the ground. The basic consideration in evaluating the effect of obstructions on operations along these routes is whether pilots would be able to visually observe and avoid them during marginal VFR weather conditions. At least l-mile flight visibility is required for VFR operations beneath the floor of controlled airspace. This means that a surface reference used for VFR low altitude flight must be horizontally visible to pilots for a minimum of 1 mile.

c. EN ROUTE OPERATIONS - The area considered for en route VFR flight begins and ends outside the airport traffic pattern airspace area, or Class B, C, and D airspace areas.

1. A structure would have an adverse effect upon VFR air navigation if its height is greater than 500 feet above the surface at its site, and within 2 statute miles of any regularly used VFR route (see FIG 6-3-10).

2. Evaluation of obstructions located within VFR routes must recognize that pilots may, and sometimes do, operate below the floor of controlled airspace during low ceilings and 1-mile flight visibility. When operating in these weather conditions and using pilotage navigation, these flights must remain within 1 mile of the identifiable landmark to maintain visual reference. Even if made more conspicuous by the installation of high intensity white obstruction lights, a structure placed in this location could be a hazard to air navigation because after sighting it, the pilot may not have the opportunity to safely circumnavigate or overfly the structure

3. VFR MILITARY TRAINING ROUTES (VR) - Operations on VRs provide military aircrews low altitude, high speed navigation and tactics training, and are a basic requirement for combat readiness (see FAA Order 7610.4, Special Military Operations). Surface structures have their greatest impact on VFR operations when ceiling and visibility conditions are at or near basic VFR minimums. Accordingly, the guidelines for a finding of substantial adverse

effect on en route VFR operations are based on consideration for those operations conducted under part 91 that permits flight clear of clouds with 1 mile flight visibility outside controlled airspace. In contrast, flight along VRs can be conducted only when weather conditions equal or exceed 3,000 feet ceiling and 5 miles visibility. A proposed structure's location on a VR is not a basis for determining it to be a hazard to air navigation; however, in recognition of the military's requirement to conduct low altitude training, disseminate part 77 notices and aeronautical study information to military representatives. Additionally, attempt to persuade the sponsor to lower or relocate a proposed structure that exceeds obstruction standards and has been identified by the military as detrimental to its training requirement.

d. AIRPORT AREAS - Consider the following when determining the effect of structures on VFR operations near airports:

1. Traffic Pattern Airspace – There are many variables that influence the establishment of airport arrival and departure traffic flows. Structures in the traffic pattern airspace may adversely affect air navigation by being a physical obstruction to air navigation or by distracting a pilot's attention during a critical phase of flight. The categories of aircraft using the airport determine airport traffic pattern airspace dimensions,

(a) Traffic Pattern Airspace dimensions (See FIG 6-3-l 1).

(b) Within Traffic Pattern Airspace - A structure that exceeds a 14 CFR, part 77 obstruction standard and that exceeds any of the following heights is considered to have an adverse effect and would have a substantial adverse effect if a significant volume of VFR aeronautical operations are affected, except as noted in paragraph 6-3-8 d. 1 .(c) and (d) (see FIG **6-3-12).**

(1) The height of the transition surface (other than abeam the runway), the approach slope (up to the height of the horizontal surface), the horizontal surface, and the conical surface (as applied to visual approach runways, Section **77.25).**

(2) Beyond the lateral limits of the conical surface and in the climb/descent area – 350 feet above airport elevation or the height of 14 CFR Section 77.23a.(2), whichever is greater not to exceed 500 feet above ground level (AGL). The climb/descent area begins abeam the runway threshold being used and is the area where the pilot is either descending to land on the runway or climbing to pattern altitude after departure (the area extending outward from a line perpendicular to the runway at the threshold, see FIG 6-3-13).

(3) Beyond the lateral limits of the conical surface and not in the climb/descent area of any runway – 500 feet above airport elevation (AE) not to exceed 500 feet AGL.

(c) An existing structure (that has been previously studied by the FAA), terrain, or a proposed structure (that would be shielded by existing structures) may not be considered to have a substantial adverse effect. In such instances, the traffic pattern may be adjusted as needed on a case-by-case basis.

(d) Exceptions may be made on a case-by-case basis when the surrounding terrain is significantly higher than the airport elevation, the established traffic pattern altitude is less than 800 feet above airport elevation, or "density altitude" is a consideration.

2. Terminal Transition Routes - A structure would have an adverse effect upon VFR air navigation if it:

(a) Exceeds a height of 500 feet above the surface at its site; and

VFRROUTES

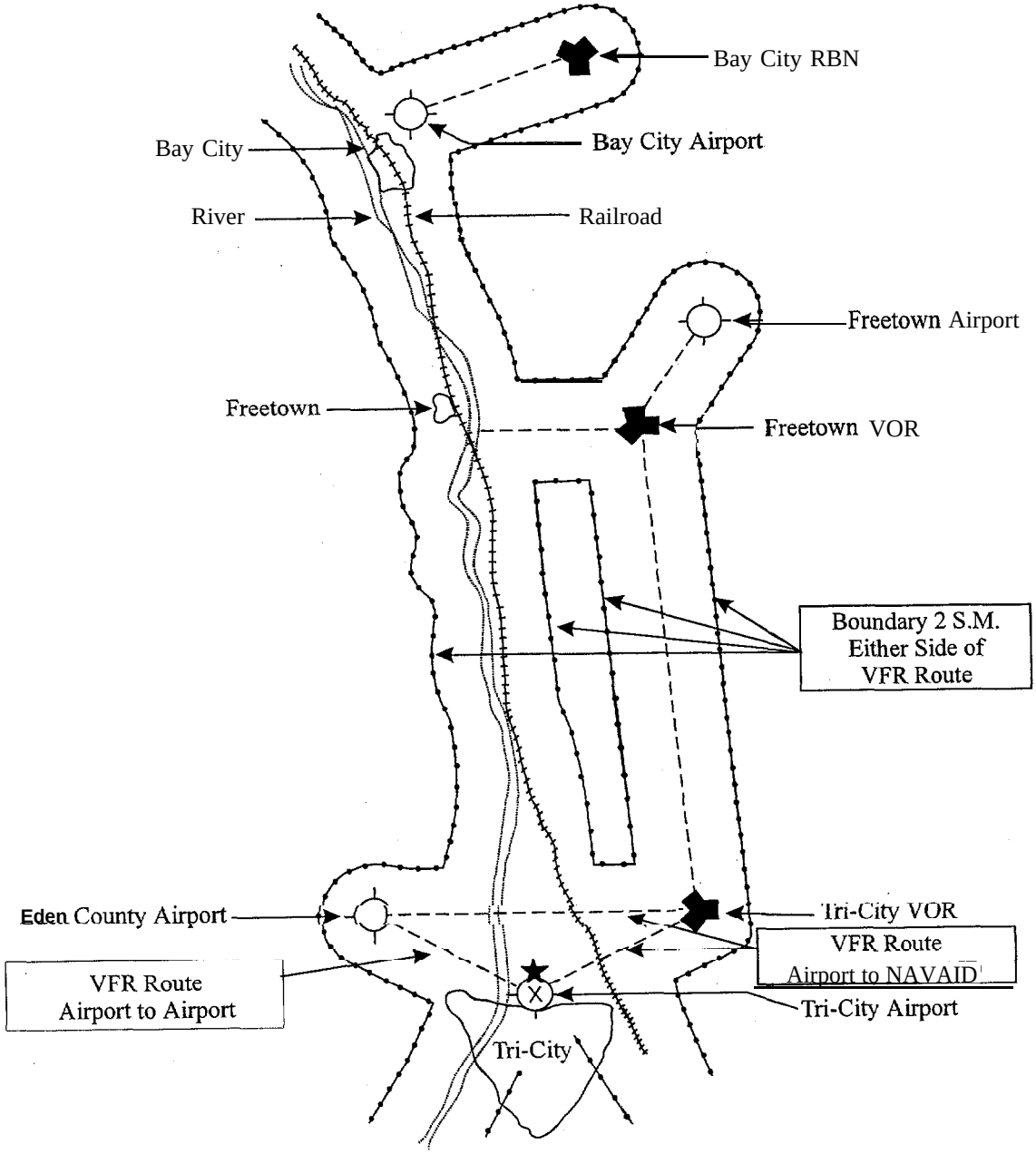


FIG 4-3-10

1. Minimum En Route Altitudes (MEA) - MEAs are established for each segment of an airway, or an approved route based upon obstacle clearance, navigational signal reception, and communications. The MEA assures obstruction clearance and acceptable navigational signal coverage over the entire airway or route segment flown. Any structure that will require an MEA to be raised has an adverse effect. Careful analysis by the appropriate Flight Procedures and AT personnel is necessary to determine if there would be a substantial adverse effect on the navigable airspace. Generally, the loss of a cardinal altitude is considered a substantial adverse effect. However, the effect may not be substantial if the aeronautical study discloses that the affected MEA is not normally flown by aircraft, nor used for air traffic control purposes.

2. Minimum Obstruction Clearance Altitudes (MOCA) – MOCAs assure obstacle clearance over the entire route segment to which they apply and assure navigational signal coverage within 22 nautical miles of the associated VOR navigational facility. For that portion of the route segment beyond 22 nautical miles from the VOR, where the MOCA is lower than the MEA and there are no plans to lower the MEA to the MOCA, a structure that affects only the MOCA would not be considered to have substantial adverse effect. Other situations require study as ATC may assign altitudes down to the MOCA under certain conditions.

3. Minimum IFR Altitudes (MIA) - These altitudes are established in accordance with Order 7210.37, En Route Minimum IFR Altitude Sector Charts, to provide the controller with minimum IFR altitude information for off-airway operations. MIAs provide the minimum obstacle clearance and are established without respect to flight-checked radar or normal radar coverage. Any structure that would cause an increase in a MIA is an obstruction, and further study is required to determine the extent of adverse effect. Radar coverage adequate to vector around such a structure is not, of itself, sufficient to mitigate a finding of substantial adverse effect that would otherwise be the basis for a determination of hazard to air navigation.

4. IFR Military Training Routes (IR) and Military Operation Areas (MOA) - Operations in MOAs involve military training activities such as air combat maneuvers,, air intercepts, aerobatics, and tactics training. These training activities are basic requirements for combat readiness. To ensure flying operations can be conducted within MOAs safely, the FAA's regional office must carefully evaluate any proposed structure that would penetrate the floor of an established MOA.

(a) The Obstruction Evaluation Automation Program will be used to identify any proposed structure that could potentially affect an established IR or MOA. The appropriate military service will review the proposal to determine if the proposed structure would have an impact on flight safety and combat training. If the military service determines that the proposed structure would adversely effect an IR or MOA, then the military service must provide a detailed response to the FAA's regional headquarters, through the military representatives, outlining the adverse effects. The response should include as much information as possible describing in detail how training and/or safety would be negatively impacted and any height reduction or relocation that would significantly reduce the impact.

(b) The FAA's regional office will carefully review the proposal, including the inputs from the proponent and the military. If the FAA determines the proposed structure, or cumulative effects of the proposed and already existing structures will have a significant adverse effect on safe operations within the IR or MOA, then a "Determination of Hazard to Air Navigation" or a "Determination of Presumed Hazard" will be issued. The FAA Obstruction Evaluation Specialist will attempt to mitigate any valid impacts identified by the military,

5. Radar Bomb Sites (RBS) - These sites are a vital link in the low level training network used by the U.S. Air Force to evaluate bomber crew proficiency. They provide accurate radar records for aircraft flying at low altitudes attacking simulated targets along the RBS scoring line. An obstruction located within the flights' RBS boundaries may have a substantial adverse effect and a serious operational impact on military training capability.

e. TERMINAL AREA IFR OPERATIONS - The obstruction standards contained in part 77 are also used to identify obstructions within terminal obstacle clearance areas. Any structure identified as an obstruction is considered to have an adverse effect; however, there is no ckar-cut formula to determine what extent of adverse effect is considered substantial. Instrument approach and departure procedures are established in accordance with published obstacle clearance guidelines and criteria. However, there are segments of instrument approach procedures where the minimum altitudes may be revised without substantially effecting landing minimums. Thus, the determination must represent a decision based on the best facts that can be obtained during the aeronautical study.

1. Instrument Approach Procedures (IAP) - Flight Procedures personnel are responsible for evaluating the effect of structures upon any segment of an IAP, any proposed IAP, or any departure restriction. However, all FAA personnel involved in the obstruction evaluation process should be familiar with all aspects of the terminal area IFR operations being considered. If Flight Procedures personnel determine that a structure will affect instrument flight procedures, their evaluation should include those procedural adjustments that can be made without adversely affecting IFR operations. When the study discloses that procedural adjustments to reduce or mitigate any adverse effect cannot be accomplished, then the comments to Air Traffic shall identify the significance of this effect on procedures and aeronautical operations.

2. Minimum Vectoring Altitudes (MVA) - These altitudes are based upon obstruction clearance requirements only (see Order 8260.19). The area considered for obstacle clearance is the normal operational use of the radar without regard to the flight-checked radar coverage. It is the responsibility of individual controllers to determine that a target return is adequate for radar control purposes. MVAs are developed by terminal facilities, approved by the National Flight Procedures Office, AVN-100, and published for controllers on MVA Sector Charts. Any structure that would cause an increase in an MVA is an obstruction and a study is required to determine the extent of adverse effect. Radar coverage adequate to vector around such a structure is not, of itself, sufficient to mitigate a finding of substantial adverse effect that would otherwise be the basis for a determination of hazard to air navigation.

3. Military Airports - With the exception of the U.S. Army, the appropriate military commands establish and approve terminal instrument procedures for airports under their respective jurisdictions. Consequently, the ATD responsible for the issuance of a determination shall ensure that the military organizations are provided the opportunity to evaluate a structure that may affect their operations. While the military has the responsibility for determining the effect of a structure, it is expected that the FPO will assist Air Traffic in reconciling differences in the military findings.

4. Departure Procedures - TERPS, Chapter 12, Civil Utilization of Area Navigation (RNAV) Departure Procedures, contains criteria for the development of IFR departure procedures. Generally, any obstacle that penetrates the 40:1 slope should be evaluated on a case-by-case basis to determine the need for a departure restriction.

5. Minimum Safe Altitudes (MSA) - A MSA is the minimum obstacle clearance altitude for emergency use within a specified distance from the navigation facility upon which a procedure is predicated. These are either Minimum Sector Altitudes, established for all procedures within a 25-mile radius of the navigational facility (may be increased to 30 miles under certain conditions), or Emergency Safe Altitudes, established within a 100-mile radius of the navigation facility and normally used only in military procedures at the option of the approval authority. These altitudes are designed for emergency use only and are not routinely used by pilots or by air traffic control. Consequently, they are not considered a factor in determining the extent of adverse effect, used as the basis of a determination, or addressed in the public notice of an aeronautical study.

f. CONSIDERING ACCURACY - Experience has shown that submissions often contain elevation and/or location errors. For this reason, Flight Procedures uses vertical and horizontal accuracy adjustments, as reflected below, to determine the effect on IFR operations.

1. Accuracy Application - Current directives require the FPO to apply accuracy standards to obstacles when evaluating effects on instrument procedures. These accuracy standards typically require an adjustment of 50 feet vertically and 250 feet horizontally to be applied in the most critical direction. Normally, these adjustments are applied to those structures that may become the controlling obstructions and are applicable until their elevation and location are verified by survey.

2. Certified Accuracy - The FPO shall notify Air Traffic whenever certified accuracy is needed to determine if the structure will have an adverse effect. Air Traffic shall then contact the sponsor to request a surveyed verification of the elevation and location. The acceptable accuracy verification method must be provided and certified by a licensed engineer or surveyor. The survey must include the plus or minus accuracy required, by the FPO, as well as the signature of the engineer/surveyor and the appropriate seal.

3. Determination - A final determination based on improved accuracy shall not be issued until after the certified survey is received and evaluated.

4. Survey Information Distribution - When the certified survey is received, Air Traffic personnel shall ensure that the survey information is provided to FPO personnel and shall send to NACO a copy of the survey attached to the FAA form 7460-2, Notice of Actual Construction or Alteration.

6-3-10. EVALUATING EFFECT ON AIR NAVIGATION AND COMMUNICATION FACILITIES

a. The FAA is authorized to establish, operate, and maintain air navigation and communications facilities and to protect such facilities from interference. During evaluation of structures, factors that may adversely affect any portion or component of the NAS must be considered. Since an electromagnetic interference potential may create adverse effects as serious as those caused by a physical penetration of the airspace by a structure, those effects shall be identified and stated. Proposals will be handled, when appropriate, directly with FCC through ASR-100.

b. Airway Facilities personnel shall evaluate notices to determine if the structure will affect the performance of existing or proposed NAS facilities. The study must also include any plans for future facilities, proposed airports, or improvements to existing airports.

c. The physical presence of a structure and/or the electromagnetic signals emanating or reflecting therefrom may have a substantial adverse effect on the availability, or quality of navigational and communications signals, or on air traffic services needed for the safe operation of aircraft. The following general guidelines are provided to assist in determining the anticipated interference.

1. Instrument Landing System (ILS) - Transmitting antennas are potential sources of electromagnetic interference that may effect the operation of aircraft using an ILS facility. The antenna height, radiation pattern, operating frequency, effective radiated power (ERP), and its proximity to the runway centerline are all factors contributing to the possibility of interference. Normally, any structure supporting a transmitting antenna within the established localizer and/or glide-slope service volume area must be studied carefully. However, extremes in structure height, ERP, frequency, and/or antemna radiation pattern may require careful study of structures up to 30 nautical miles from the ILS frequency's protected service volume area.

(a) ILS Localizer - Large mass structures adjacent to the localizer course and/or antenna array are potential sources of reflections and/or re-radiation that may affect facility operation. The shape and intensity of such reflections and/or re-radiation depends upon the size of the reflecting surface and distance from the localizer antenna. The angle of incidence reflection in the azimuth plane generally follows the rules of basic optical reflection. Normally, in order to affect the course, the reflections must come from structures that lie in or near the on-course signal. Large mass structures of any type, including metallic fences or powerlines, within plus/minus 15 degrees of extended centerline up to 1 NM from the approach end of the runway and any obstruction within 500 feet of the localizer antenna array must be studied carefully. (Refer to FAA Order 6750.16, Siting Criteria for Instrument Landing Systems).

(b) ILS Glide Slope - Vertical surfaces within approximately 1,000 feet of the runway centerline and located up to 3,000 feet forward of the glide slope antenna can cause harmful reflections. Most interference to the glide slope are caused by discontinuities in the ground surface, described approximately as a rectangular area 1,000 feet wide by 5,000 feet long, extending forward from the glide slope antenna and centered at about the runway centerline. Discontinuities are usually in the form of rough terrain or buildings. (Refer to FAA Order 6750.16, Siting Criteria for Instrument Landing Systems.)

2. Microwave Landing System (MLS) - The guidelines stated for ILS systems above also apply to MLS installations. The established MLS service volume defines the area of concern.

3. Very High Frequency Omni -Directional Radio Range and Tactical Air Navigation Aid (VOR/TACAN) - Usually, there should be no reflecting structures or heavy vegetation (trees, brush, etc.) within a 1,000 foot radius of the VOR or the TACAN antenna. Interference may occur from large structures or powerlines up to 2 NM from the antenna. (Refer to FAA Order 6820.10 VOR, VOR/DME, and TACAN Siting Criteria).

4. Air Route Surveillance Radar/Airport Surveillance Radar (ARSR/ASR) - Normally, there should be no reflecting structures within a 1,500-foot radius of the radar antenna. In addition, large reflective structures up to 3 NM from the antenna can cause interference unless they are in the "shadow" of topographic features.

Air Traffic Control Radar Beacon (AT&B) - The effects encountered due to reflections of the secondary radar main lobe are more serious than those associated with primary radar. Therefore, it is necessary to ensure that no large vertical reflecting surface penetrates a 1,500-foot radius horizontal plane located 25 feet below the antenna platform. In addition, interference may occur from large structures up to 12 miles away from the antenna. This distance will depend on the area of the reflecting surface, the reflection coefficient of the surface, and its elevation with respect to the interrogator antenna. (Refer to FAA Order 6310.6, Primary/Secondary Terminal Radar Siting Handbook).

6. Directional Finder (DF) - The DF antenna site should be free of structures that will obstruct line-of-sight with aircraft at low altitudes. The vicinity within 300 feet of the antenna should be free of metallic structures which can act as re-radiators.

7. Communication Facilities - Minimum desirable distances to prevent interference problems between communication facilities and other construction are:

(a) 1,000 feet from power transmission lines (other than those serving the facility) and other radio or radar facilities;

(b) 300 feet from areas of high vehicle activity such as highways, busy roads, and large parking areas; and

(c) One (1) NM from commercial broadcasting stations (e.g., FM, TV).

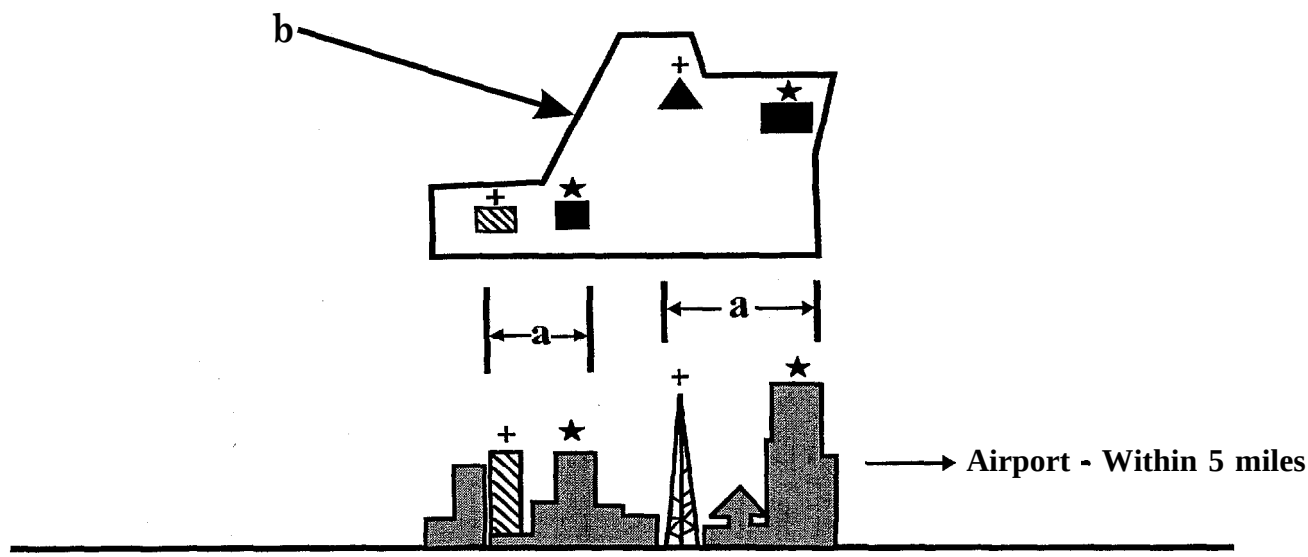
8. Approach Lighting System - No structure, except the localizer antenna, the localizer far field monitor antenna, or the marker antenna shall protrude above the approach light plane. For approach light plane clearance purposes, all roads, highways, vehicle parking areas, and railroads shall be considered as vertical solid structures. The clearance required above interstate highways is 17 feet; above railroads, 23 feet; and for all other public roads, highways, and vehicle parking areas, 15 feet. The clearance required for a private road is 10 feet or the highest mobile structure that would normally use the road, which would exceed 10 feet. The clearance for roads and highways shall be measured from the crown of the road; the clearance for railroads shall be measured from the top of the rails. For vehicle parking areas, clearance shall be measured from the average grade in the vicinity of the highest point. Relative to airport service roads substantial adverse effect can be eliminated if all vehicular traffic is controlled or managed by the air traffic control facility. A clear line-of-sight is required to all lights in the system from any point on a surface, one-half degree below the aircraft descent path and extending 250 feet each side of the runway centerline, up to 1,600 feet in advance of the outermost light in the system.

distribution is maintained for future reference. Also record the time period during which each printout or list is used. The retention schedule is listed in Order 1350.15, Records Organization, Transfer, and Destruction Standards.

e. Consider only valid aeronautical objections or comments in determining the extent of adverse effect of the structure. Comments of a non-aeronautical nature are not considered in obstruction evaluation as described in part 77.

f. If the sponsor agrees to revise the project so that it does not exceed obstruction standards and would have no adverse effect, cancel the public notice, advise interested parties, as necessary, revise the obstruction evaluation study, and proceed as appropriate.

STANDARDS FOR DETERMINING SHIELDING: CONGESTED PART OF CITY, TOWN, OR SETTLEMENT



Ground Level

+ Shielded Object
★ Shielding Object
a Not More Than 500 Feet
b Congested Part of City, Town, or Settlement

FIG 6-3-I 4

Frequency Protected Service Volume for ILS Back Course

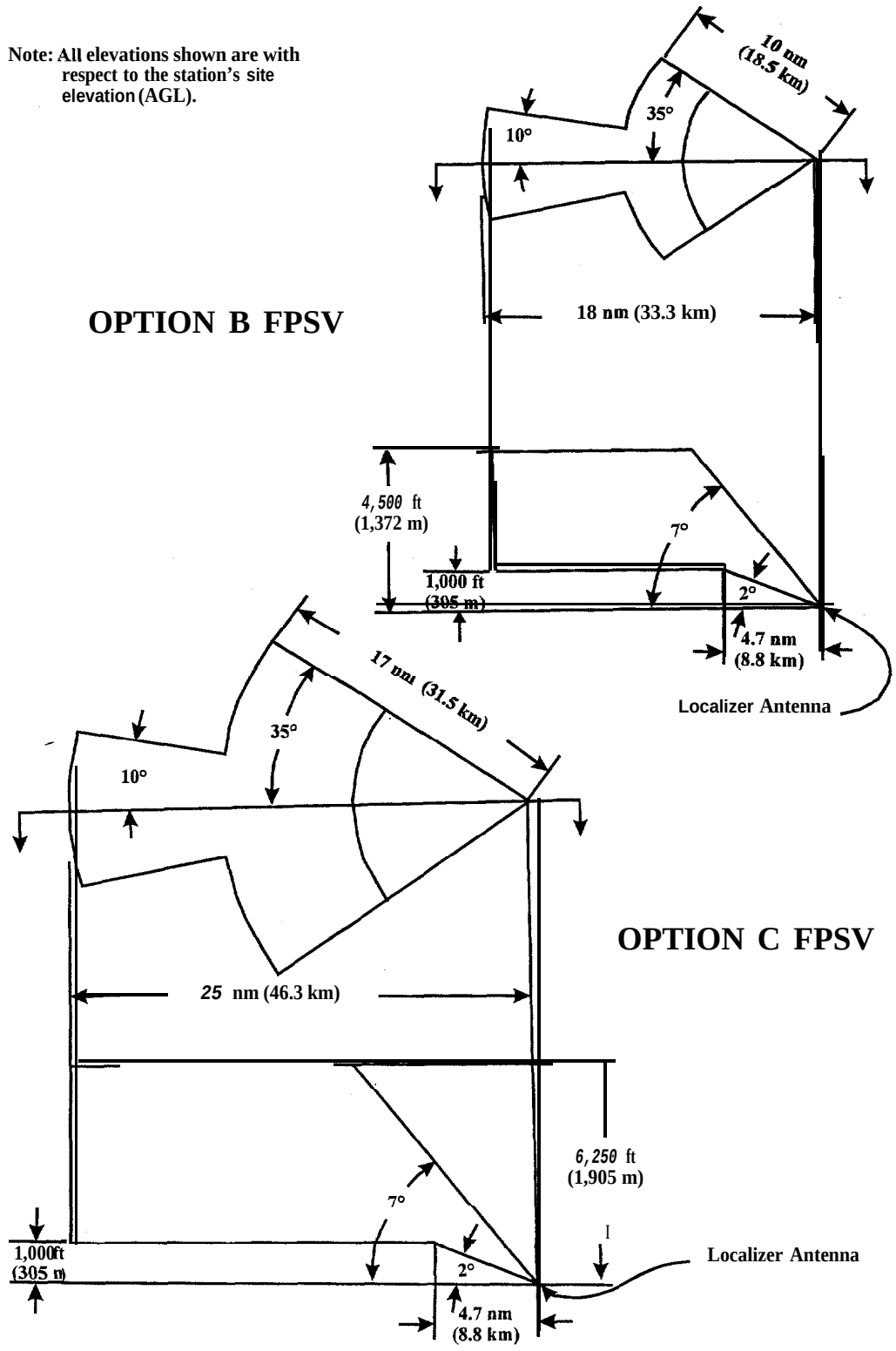
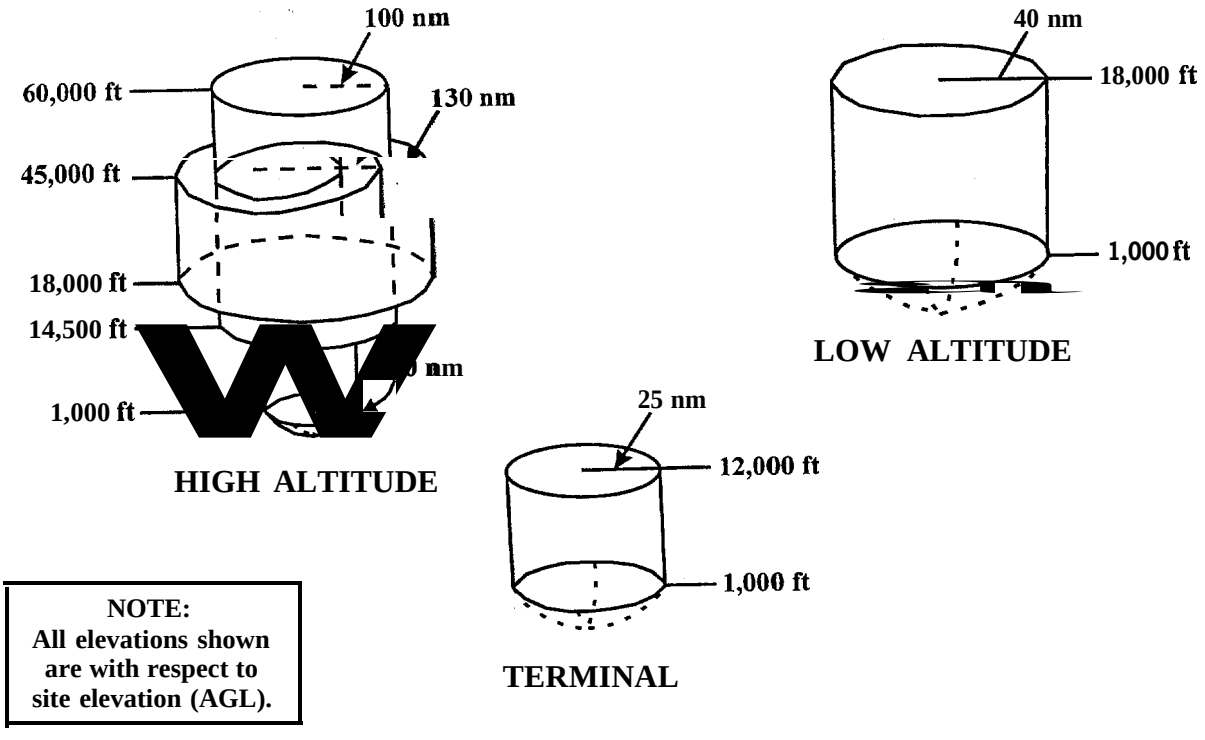


FIG 6-3-19

Frequency Protected Service Volume for VOR



NOTE:
All elevations shown are with respect to site elevation (AGL).

FIG 6-3-20

"FCC licensees are required to file an environmental assessment with the Commission when seeking authorization for use of the high intensity flashing white lighting system,"

(3) If it is an existing structure and the requested marking and/or lighting change is recommended, the sponsor shall be required to notify NACO directly when the change has been accomplished. Use the following specific language: "So that aeronautical charts and records can be updated, please notify National Aeronautical Charting Office (NACO) in writing (with a courtesy copy to the NFDC) when the new system is installed and operational. NACO notification should be addressed to: National Aeronautical Charting Office, Aeronautical Information Branch, Room 560 1 N/ACC 113, 1305 East-West Highway, Silver Spring, Maryland 209 10."

(d) If it is determined that marking and/or lighting are not necessary for aviation safety, marking and/or lighting may be accomplished on a voluntary basis. However, marking and/or lighting should not be a condition of the determination. Instead, it shall be recommended that voluntary marking and/or lighting be installed and maintained in accordance with AC 70/7460- 1. Use specific language as follows: "Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking and/or lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory Circular 70/7460-l ."

4. SUPPLEMENTAL NOTICE - FAA Form 7460-2, Notice of Actual Construction or Alteration, is the authorized form for sponsors to report the start, completion, or abandonment of construction, and the dismantlement of structures. If needed, furnish this form to each sponsor when such supplemental notice is required. Include on the form, the aeronautical study number, the city and state, and the requesting ATD's return address before sending it to the sponsor. Retain and file Part 3 of the form in the requesting division.

(a) Request sponsors to complete and mail Part 1 of FAA Form 7460-2, to be received at least 10 days before the start of construction or alteration, when:

(1) An aeronautical procedure or minimum flight altitude will be affected (supplemental notice earlier than 10 days may be requested to permit adjustments);

(2) The construction will be in progress over an extended period of time; or

(3) The structure will exceed 500 feet AGL and will be erected within a relatively short period of time, as in the case of a TV tower.

(b) In addition, submission by the sponsor of FAA Form 7460-2, shall be required when the structure is a new construction or involves a proposed physical alteration, and:

(1) Is more than 200 feet above ground level;

(2) Is less than 200 feet above ground level (AGL) but exceeds obstruction standards, requires a change to an established FAA procedure or flight minimum, requires certified accuracy so as not to exceed minimums; or

(3) The FAA deems it necessary for any other reason.

(c) The information submitted on FAA Form 7460-2 is used for:

(1) Charting obstructions to air navigation on aeronautical charts;

(2) Giving notice to airmen, when applicable, of the construction of obstructions;

(3) Changing affected aeronautical procedures and operations;

(4) Revising minimum flight altitudes; and

(5) Updating the NACO Obstacle Digital File.

(d) Do not require supplemental notice for existing structures that do not involve a proposed physical alteration. Instead, directly communicate the known information to NACO and other relevant persons or organizations, as necessary. I

5. EXPIRATION DATE - Include an expiration date, if applicable.

(a) Assign an expiration date to all determinations that involve new construction or alterations.

(1) Normally all determinations, whether FCC construction permit related or not, shall be assigned an expiration date 18 months from the effective/issued date. In the case of determinations involving petition rights, the expiration shall be 18 months from the final date of the determination.

(2) An expiration date of less or more than 18 months may be assigned if circumstances warrant.

(b) The determination expires on the date prescribed unless:

(1) Extended, revised, or terminated by the issuing office; or

(2) The construction is subject to the licensing authority of the FCC and an application for a construction permit has been filed as required by the FCC within 6 months of the date of the determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application. A request for extension must be postmarked or delivered at least 15 days prior to expiration.

(c) If the date of a final determination is changed because of a petition or review, a new expiration date will be specified as appropriate.

(d) Determinations involving existing structures that do not involve a proposed physical alteration shall not contain an expiration date.

6. SPECIAL CONDITIONS - Any condition upon which a non-hazard determination is based shall be specified in the determination. When FAA Form 7460-2 is requested, a condition of the determination will be for the sponsor to keep the FAA informed of the project's status. Use the following specific language: "As a result of this structure being critical to flight safety, it is required that the FAA be kept informed as to the status of the project. Failure to respond to periodic FAA inquiries could invalidate this determination."

7. SPECIAL STATEMENTS - To help prevent potential problems, all determinations shall include the following statements:

(a) "This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies), and power. Any change in coordinates, heights, frequency(ies), or use of greater power will void this determination. Any future construction or alteration, including increase in heights, power, or the addition of other transmitters, requires separate notice to the FAA."

(b) "This determination does include temporary construction equipment, such as cranes, derricks, etc., which may be used during the actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA."

(c) "This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, state, or local government body."

8. ADVISORIES - Determinations may require advisory statements (available in the automated letters) to notify sponsors of potential issues.

(a) Issues pertaining to noise can be addressed as a statement in the determination with the following language: "The structure considered under this study lies in proximity to an airport and occupants may be subjected to noise from aircraft operating to and from the airport."

(b) When requested by the military, issues pertaining to military training areas/routes can be addressed in a determination with the following language: "While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route."

(c) Issues pertaining to a runway protection zone can be addressed in the determination as follows: "While the structure does not constitute a hazard to air navigation, it would be located within the Runway Protection Zone (RPZ) of the airport/runway. Structures, which will result in the congregation of people within an RPZ, are strongly discouraged in the interest of protecting people and property on the ground. In cases where the FAA can control the use of the property, such structures are prohibited. In cases where the FAA exercises no such control, advisory recommendations are issued to inform the sponsor of the inadvisability of the project from the standpoint of safety to personnel and property."

b. In addition to the above items, a DNH shall also include or address:

1. Obstruction standards exceeded;

2. Effect on VFR/IFR aeronautical departure/arrival and en route operations, procedures, and minimum flight altitudes;

3. Effect on existing public-use airports and aeronautical facilities;

4. Effect on all planned public-use airports and aeronautical facilities;

5. Cumulative impact resulting from the proposed construction or alteration of a structure when combined with the impact of other existing or proposed structures;

6. Information and comments received as a result of circularization, informal airspace meetings, and negotiations;

7. Reasons and basis for the determination that the structure will not be a hazard to air navigation and any accommodations necessary by aeronautical users or sponsors;

8. Consideration given to any valid aeronautical comments received during the aeronautical study. The official FAA determination shall be a composite of the comments and findings received from other interested FAA offices;

9. Conditions of the determination, including recommendations for marking and/or lighting of a structure, and changes in procedures and/or altitudes that are necessary to accommodate the structure. The "conditions" should include a statement that appropriate action will be taken to amend the effected procedure(s) and/or altitude(s) upon notification to the FAA by the sponsor prior to the start of construction or alteration;

10. Limitations, if any; and

11. Petitioning information regardless of whether the structure is proposed or existing using the following specific language: 'This determination is subject to review if an interested party tiles a petition on or before (30 davs from issued date). In the event a pet&ion for review is filed, it must contain a full statement of the basis upon which it is made and be submitted in triplicate to the Manager, Airspace and Rules Division, ATA-400, Federal Aviation Administration, Washington, DC 20591. This determination becomes final on (40 davs from issued date) unless a petition is timely tiled. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified off the grant of any review."

c. A DOH shall include or address:

1. FULL DESCRIPTION - A full description of the structure, project, proposal, etc., including all submitted frequencies and ERP, shall be included. Use exact inform&ion to clearly identify the nature of the project. Use wording, such as microwave antenna tower, FM or AM antenna tower, suspension bridge, TV antenna tower, or four-stack power plant.

2. LATITUDE, LONGITUDE, &ND HEIGHT- Specify the latitude, longitude, and height(s) of each structure. When an obstruction evaluation study concerns an array of antennas or other multiple-type structures, specific information on each structure should be included.

3. BASIS FOR THE DETERMINATION - The reasons and basis for the determination must include the adverse effect of the proposal upon the safe and efficient use of the navigable airspace by aircraft, and upon air navigation facilities. Also, state the reasons the affeoted aeronautical operations, or the procedure, cannot be adjusted to alleviate or eliminate the

conflicting demands for the airspace. As a minimum, the determination shall address the following:

(a) Obstruction standards exceeded;

(b) The effect on VFR/IFR aeronautical departure/arrival and en route operations, procedures, and the minimum flight altitudes effect on existing public-use airports and aeronautical facilities;

(c) The effect on all planned public-use airports and aeronautical facilities on file with the FAA, or for which the FAA has received adequate notice;

(d) The cumulative impact resulting from the proposed construction, or alteration of a structure when combined with the impact of other existing or proposed structures;

(e) Information and comments received as a result of circularization, informal airspace meetings, and negotiations; and

(f) Reasons and basis for the determination as to why the structure would be a hazard to air navigation (e.g., a clear showing of substantial adverse effect).

4. PETITIONING INFORMATION - Include petitioning information, regardless of whether the structure is proposed or existing, using the following specific language: "This determination is subject to review if an interested party files a petition on or before (30 days from issued date). In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted in triplicate to the Manager, Airspace and Rules Division, ATA-400, Federal Aviation Administration, Washington, DC 20591. This determination becomes final on (40 days from issued date) unless a petition is timely filed. The determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review."

7-1-6. DETERMINATION DATES

a. ISSUED DATE - The issuance date of a determination is the date the determination is distributed.

b. PETITION DEADLINE - For determinations that involve petition rights, the deadline for receipt of petition shall be 30 days from the date of issuance.

c. EFFECTIVE DATE -

1. The effective date of determinations that do not involve petition tights shall be the date of issuance.

2. The effective date of determinations that involve petition rights, whether for existing or proposed structures, shall be 40 days from the date of issuance, provided a petition for review is not filed. If a petition for review is tiled, the determination will not become final pending disposition of the petition.

NOTE-
The effective date and the issued date may or may not be the same. The effective date may also be referred to as the final date.

7-l -7. EXISTING STRUCTURES

A determination issued as a result of the study of an existing structure may be written in the following forms:

a. As a DOH or DNH;

b. As a formal letter outlining the effects of the structure and perhaps recommending to the sponsor that the structure, be marked and/or lighted, specifying that it be reduced in height, or specifying that it be removed;

c. As an informal letter or staff study making an internal FAA recommendation; or

d. As a formal letter to the FCC recommending the dismantling of an abandoned tower.

7-l-8. DISTRIBUTION OF DETERMINATIONS

A record of the distribution for each determination whether original, revised, extended, or affirmed shall be maintained in the aeronautical study file. When appropriate, a reference to the distribution code, a mailing list, or any other evidence of distribution will be sufficient.

a. Copies of all determinations shall be sent to the:

1. Sponsor (with FAA Form 7460-2 as necessary);

2. Sponsor's representative (if any);

3. FCC (if the structure is subject to its licensing authority);

4. NACO in lieu of FAA Form 7460-2 (if the structure is existing and does not involve a proposed physical alteration). Copies of the determination shall always be accompanied by a copy of the submitted map and, if applicable, a copy of the survey; or if the determination involves a change to marking and/or lighting of an existing structure for which the sponsor has been requested to notify NACO directly of the change. Copies of the determination shall always be accompanied by a copy of the submitted map and, if applicable, a copy of the surveys; and

5. Other persons, offices, or entities as deemed necessary or as requested.

b. In addition to the above distribution, copies of a DNH and DOH shall also be sent to:

1. ATA-400;

2. NACO;

3. Military representatives; and

4. All other interested persons.

Section 3. REVISION, CORRECTION, AND TERMINATION OF DETERMINATION

7-3-l. REVISIONS AND TERMINATIONS BASED ON NEW FACTS

The FAA official responsible for issuing a no hazard determination has the delegated authority (Section 77.39) to revise or terminate: the determination provided, the decision is based upon new facts that change the basis on which the original determination was made.

a. Revised determinations based on new aeronautical facts shall be issued under a new aeronautical study number that would cancel and supersede the original determination.

b. A decision to terminate a no-hazard determination shall be based on new facts, that change the basis on which the determination was made, Normally in such a case, a subsequent "Determination of Hazard" would be issued under a new aeronautical study number.

7-3-2. CORRECTION

The FAA official issuing a determination may also correct that determination as required. Editorial changes that do not involve a coordinate change (of 1 second or moire in latitude or longitude) or elevation change (of 1 foot or more) may be issued as correction%. In this case, no change to dates would be necessary. Adjustments or corrections to a proposal that involve one or both of the above coordinate or elevation changes shall be addressed as a new and separate obstruction evaluation study.

7-3-3. STANDARD FORMAT

a. A revised determination based on new aeronautical facts shall follow the standard format of the appropriate determination. An explanation should be included addressing the reason for the revision. A statement indicating that the revised determination cancels and supersedes the determination originally issued, should also be included.

b. A determination addressing editorial changes that do not involve structure coordinates or elevations may be issued by duplicating the original determination, making the corrections, adding a statement explaining the correction, and adding "Corrected" at the end of the title.

c. A determination addressing corrections to coordinates or elevations shall follow the standard format of the appropriate determination. An explanation should be included addressing the correction. This may be done in the description section of the determination. A statement should also be included which indicates that the corrected determination cancels and supersedes the original determination.

7-3-4. DISTRIBUTION

Copies of revised or corrected determigaations shall be given the same distribution as the original determination and, if appropriate, be distributed to other known interested persons or parties.

Chapter 8. POST DETERMINATION ACTION

Section 1. ACTION

8-I -1. FOLLOW-UP ACTION

If a determination requires supplemental notice (Form 7460-2) and the expiration date has passed without its receipt, action shall be taken to determine construction status. To assist in this process, the automated "Follow-up Report" is available to identify those cases that require action. To determine construction status, Air Traffic shall forward an automated Project Status Request (PSR) letter to the sponsor. If the sponsor fails to complete and return the PSR within 37 days, AT may send an automated Termination Project Status (TERPSR) letter to terminate the case.

NOTE-
If aprevious PSR has been receivedfor the case indicating an FCC application has been made for a construction permit? the case shall not be terminated. Consequently, additional attempts shall be made to determine construction status.

8-I -2. RECEIPT OF COMPLETED PSR

When a completed PSR is received, Air Traffic shall:

a. Ensure that a copy of the Construction Permit (CP) documentation is attached (if the completed PSR indicates "Subject to CP").

1. If improper documentation or no documentation is attached, the case may be terminated. Distribute the termination letter as appropriate including a copy to the FCC.

2. If proper documentation is attached:

(a) Retain the completed PSR, and

(b) Make a manual update to the automated OE case file to reflect a follow-up date consistent with the expiration of the CP. If a CP has been applied for but has not been issued, indicate 1 year later for the new follow-up date.

b. If the completed PSR indicates "Not Subject to a CP":

1. Retain the completed PSR.

2. Terminate the case (send automated TEREXP letter).

3. Distribute the termination letter as appropriate including a copy to the FCC.

c. If the completed PSR indicates "Project Abandoned," refer to paragraph 8-1-4.

d. If the completed PSR indicates "Project Complete," take action that is consistent with receipt of a completed Form 7460-2.

8-l-3. RECEIPT OF COMPLETED FORM 7460-Z

When a completed Form 7460-2 is received, Air Traffic shall immediately:

a. Review the form.

1. If the form indicates "Project Abandoned," follow procedures outlined in paragraph 8-l-4.

2. If the form indicates "Construction Dismantled," follow procedures outlined in paragraph 8- l-5.

b. Compare the information on the form with the study file.

1. If information on the form differs from the study file, take appropriate action to verify and/or resolve any differences.

2. If it is verified that submitted information differs from the original evaluation, initiate a new aeronautical study to reevaluate the new information.

c. Make special distribution of completed Form 7460-2, part 1, as necessary. If minimum flight altitudes require change or the potential for EM1 exists, notify the FPO, FS, AF and/or FM by the quickest means possible.

d. Distribute the completed Form 7460-2, part 2, as follows:

1. Send one copy of completed Form 7460-2 to NOS along with a copy of the map and survey (if applicable).

2. Send a copy of completed Form 7460-2 to all interested offices including military, AFSS, ARTCC E-MSAW, ARTS IIA, III, IIIA, and Micro E ARTS facilities.

e. Make the necessary manual updates to the automated OE case file.

8-1-4. PROCESSING PROJECT ABANDONED NOTIFICATION

When notification of an abandonment is received, Air Traffic shall:

a. Retain the correspondence or record of conversation notifying that the project has been abandoned.

b. Terminate the case (send an automated TERABA letter).

c. Distribute the termination letter, as appropriate. If the termination is for an FCC involved structure, send a copy to the FCC.

8-1-5. PROCESSING, DISMANTLEMENT NOTIFICATION

When notification of a dismantled structure is received, Air Traffic shall:

a. Retain the correspondence notifying that the project has been dismantled.

b. Make a manual update to the automated OE case file if available.

c. Notify NACO, FCC (if it is involved), and FPO of the dismantled structure: by sending a copy of the received correspondence.

Part 3. AIRPORT AIRSPACE ANALYSIS

Chapter 10. BASIC

Section 1. POLICY

10-1-1. PURPOSE

a. This part provides guidelines, procedures, and standards that supplement those contained in 14 CFR part 157, Notice of Construction, Alteration, Activation, and Deactivation of Airports.

b. These guidelines, procedures, and standards shall be used in determining the effect construction, alteration, activation, or deactivation of an airport will have on the safe and efficient use of the navigable airspace by aircraft.

10-1-2. AUTHORITY

The authority for managing the Airports Program is delegated to the regional Airports Division manager, and may be re-delegated to the Airports District Offices (ADO). Airport personnel shall administer the Airports Program with the coordinated assistance of Air Traffic, Airway Facilities, Flight Standards, and Flight Procedures personnel.

10-1-3. AIRPORT PROGRAMS

a. Airport development/improvement projects are initiated under the authority of several laws relating to Federal airport financial assistance programs. There are certain similarities in processing federally assisted and non-federally-assisted airport development improvement projects, including airport layout plan reviews. However, a significant difference is that on a federally assisted project the FAA must formally approve the airspace for the projects that receive federal assistance.

b. Airport Improvement Program (AIP) - AIP projects, including airport layout plans, are processed similarly to non-AIP projects, except that the airspace for the airport study results in either an agency approval or disapproval of the project.

c. Disposal or Conveyance of Federal Surplus Real Property for Public Airport Purposes - The FAA is required to officially endorse the site before property interest in land owned and controlled by the United States is conveyed to a public agency for public airport purposes. Airspace cases are handled in the same manner as proposals for other federally assisted airports.

d. Military/National Aeronautics and Space Administration (NASA) Airport Programs – 49 U.S.C, Section 44502(c) provides that the DoD and NASA shall not acquire, establish, or construct any military airport, military landing area, or missile or rocket site; or substantially alter any runway layout unless reasonable prior notice is given to the FAA. This permits the FAA to "...advise the appropriate committees of Congress and other interested departments, agencies, and instrumentalities of the government on the effects" of such projects "upon the use of airspace by aircraft."

NOTE-
See Chapter 13 for the **procedures** *for processing these proposals.*

e. Part 157 Proposals - Pursuant to appropriate sections of the Federal Aviation Act of 1958, as amended, part 157 was adopted to require notice to the Administrator by persons proposing to construct, alter, activate, or deactivate a civil or joint-use (civil/military) airport for which Federal funds have not been requested. Such notice is required so that a study can be made and the proponent can be advised as to the proposal's effect on the use of the navigable airspace by aircraft.

f. All airport proposals on a public-use airports not requiring notice under part 157 that may require notice under part 77.

g. Passenger Facility Charge (PFC) - Part 15 8 program projects are required to be on an approved ALP and are processed similarly to AIP projects.

10-I-4. FUNDING RESPONSIBILITY

Each participating office shall note airport projects or airport layout plan changes which would, if accomplished, lead to the relocation, replacement, or modification of air traffic control, or air navigation and communications facilities. Such conditions shall be identified in the review process, and appropriate recommendations made regarding funding responsibilities as related to current FAA policy on facility relocation associated with airport improvements or changes (see FAA Order 6030.1 and AC 150/5300-7, FAA Policy On Facility Relocations Occasioned By Airport Improvements Or Changes).

1 O-l-5. RESPONSIBILITY

a. The Airports Division, or designated representative, is responsible for the overall Airports Program, initiating the coordination of airspace studies of airport proposals; conducting the necessary circularization; consolidating and resolving comments; and developing and forwarding the FAA determination to the airport sponsor/proponent. Where applicable, the airports division personnel shall forward documents regarding potential noise problems to the airport proponent/sponsor for resolution

b. The ATD is responsible for evaluating the proposal from the standpoint of safe and efficient use of airspace by aircraft. In addition, based on existing and/or contemplated traffic patterns and procedures, the ATD manager shall be responsible for identifying potential noise problems and advising the Airports Office accordingly.

c. The FPO is responsible for evaluating proposals to determine impacts on instrument procedures, and whether aircraft instrument operations can be conducted safely.

d. The Flight Standards Division is responsible for reviewing proposals to determine the safety of aeronautical operations, and of persons and property on the ground.

e. The flight standards district office (FSDO) is responsible for reviewing part 157 proposals for seaplane bases and heliports.

f. The Airway Facilities Division is responsible for:

1. Reviewing engineer-kg studies on airport proposals to evaluate their effects upon commissioned and/or proposed NAVAIDs.

2. Conducting electromagnetic studies to evaluate the effect existing and/or proposed objects will have upon air navigation and communications facilities.

3. Reviewing and evaluating line-of-site (shadow) studies on existing and/or proposed objects to determine impact on control tower visibility.

4. Highlighting frequency management problems and reserving frequencies.

Section 3. AIRPORT STANDARDS

1 O-3-1. DESIGN STANDARDS

a. For Federally obligated airports, it is the responsibility of the airport proponent/sponsor/planner to comply with FAA airport design standards.

b. For non-Federally obligated airports or National Plan of Integrated Airport Systems (NPIAS) airports, it should be encouraged that the airport proponent/sponsor/planner comply with FAA airport design standards.

c. It should be noted when airport design standards are combined with appropriate state and local zoning ordinances, the resultant effect should:

1. Assure the lowest possible operational altitudes for aircraft;

2. Protect the economic investment in the airport; and

3. Promote safety in the areas affected by the airport by assuring, through proper development, compatible land use.

10-3-2. AIRPORT SPACING GUIDELINES AND TRAFFIC PATTERN AIRSPACE AREAS

a. The following guidelines are to be used as aids when evaluating airport proposals. The guidelines may also be used to determine airspace requirements to accommodate a given operation under a given condition; areas of potential air traffic conflict for aircraft having certain operational and performance characteristics; and the degree of aircraft operational flight compatibility with other airports in a given area. These guidelines are not to be construed as authorizations for aircraft operations contrary to any Code of Federal Regulations, nor are the dimensions to be construed as air traffic separation standards.

b. Aircraft Approach Categories - The factor used to categorize the following aircraft was taken from part 97. This factor is based on 1.3 times the stall speed with aircraft in landing configuration at maximum certificate landing weight.

1. Category A - Speed less than 91 knots. This category includes civil single-engine aircraft, light twins, and some of the heavier twins.

2. Category B - Speed 91 knots or greater but less than 121 knots.

3. Category C - Speed 121 knots or greater but less than 141 knots.

4. Category D - Speed 141 knots or greater but less than 166 knots.

5. Category E - Speed 166 knots or greater. This category includes, for the most part, those military, experimental, and some civil aircraft having extremely high speeds and critical performance characteristics.

c. IFR Radar Airspace.

1. Air traffic control airspace requirements for a specific runway or airport are generally dictated by the approach category of the aircraft that will use the airport, and the direction of the associated instrument approaches and departures. Based on these factors, the following rectangular airspace areas were developed as general guides for the planning or siting of new airports, and the designation of instrument runways when IFR radar control procedures are contemplated or programmed for a single airport operation, or under certain conditions, multiple airport operations. No provisions are made for holding or for procedure turns within the airspace areas.

(a) Airports that are regularly used by Category C aircraft or larger: 10 miles in the departure direction, 15 miles in the direction from which approaches will be made, and 5 miles either side of the extended runway centerline.

(b) Airports which are regularly used by Category B and smaller aircraft: 5 miles in the departure direction, 10 miles in the direction from which approaches will be made, and 4 miles either side of the extended runway centerline.

(c) In metropolitan areas requiring more than one airport: the primary instrument runways at all airports should be aligned in the same general direction to allow maximum spacing between airspace areas.

(d) At airports having parallel approaches: the rectangular airspace areas should be applied to each runway. Should the

instrument runways at an airport have bi-directional instrument approach capabilities, the total length of the larger airspace areas should be increased to 30 miles for Category C and D aircraft, and to 20 miles for Category A and B aircraft in the smaller airspace areas.

2. These airspace dimensions will not, nor are they intended to, contain sufficient airspace to provide for completely independent IFR operations. Normally, these areas will provide for reasonable operational efficiency if the traffic pattern airspace areas of adjacent airports do not overlap. However, in large metropolitan areas where there is an extremely heavy mix of en route and terminal traffic, reasonable operational efficiency may not result even though the airspace areas do not overlap. Such situations require a thorough review of the procedural potential of the area, as well as alternate site considerations. In conducting studies where complete radar environments call for the larger airspace areas, and such areas abut each other but do not overlap, there is adequate space for:

(a) Approach and departure on the runway centerline.

(b) Two additional tracks offset from, and parallel to, the runway centerline. A minimum of 4 miles is provided between adjacent tracks of different areas (see FIG 10-3-l).

3. Where two smaller areas are adjacent but do not overlap, an additional l-mile spacing is required on two of the longitudinal sides (see FIG 10-3-2).

4. When the anticipated traffic volume at an existing or proposed airport requires additional airspace for greater airspace-use efficiency and operational flexibility, expand the airspace, where available, by providing a 5-mile buffer area between the adjacent airports involved. This additional airspace will provide two additional tracks offset from, and parallel to, the runway centerlines within the airspace areas of the adjacent airports and one additional track for each airport within the 5-mile buffer area. A minimum of 3 miles is provided between each track paralleling the runway centerline and each additional track in the buffer area. A 3-mile no transgression area is also provided between the two airports (see FIG 1 O-3-3).

5. If additional airspace is required in the smaller areas for greater airspace-use efficiency and flexible operation, the procedures for determining the additional airspace are identical to those used for the larger areas, except that the smaller airspace should be used in lieu of the larger airspace areas. The l-mile additional spacing should also be applied, as outlined in subparagraph **b.3.** above, in addition to the 5-mile buffer area, as outlined in subparagraph b.4. above (see FIG 10-3-4).

d. IFR Nonradar Airspace - A wide range of procedures is available for airspace requirements associated with instrument approach procedures at IFR airports without radar services. Therefore, no attempt has been made to describe these requirements in detail. However, should it become necessary to determine the airspace requirements at such airports, apply the appropriate primary airspace areas and "aircraft approach categories" discussed in subparagraph a. above. Additional information is contained in AC 150/5300-13, Airport Design.

e. VFR Airspace - A primary objective in an airport/airspace study is to determine whether compatible VFR traffic patterns may be developed for a new airport, or when to alter a runway layout at an existing airport located in proximity to other airports. Because flight tracks and climb/descent profiles vary when operating in a VFR traffic pattern, the following guidelines are offered for use in these studies:

1. Traffic pattern airspace (see section 6-3-8) of one airport may touch but should not overlap the traffic pattern airspace of another airport;

2. Traffic pattern airspace should be enlarged as described in section 6-3-11, when more than four aircraft of the same category operate in a VFR traffic pattern at the same time.

1033. DESIGNATION OF INSTRUMENT RUNWAYS, CHANGES OF AIRPORT STATUS VFR TO IFR AND LOWERING MINIMUMS

Requests for designation of instrument runways, which relate to installation or qualification for precision landing aids, and proposals for a change in airport status from VFR to IFR, or lowering instrument approach minimums usually take one of the following forms:

Chapter 11. EVALUATING AERONAUTICAL EFFECT

Section I. GENERAL

11-1-1. EXISTING AND PROPOSED OBJECTS

Use the guidelines in Chapter 10 to evaluate the effects of objects on the airport proposal.

11-1-2. AIRPORT TRAFFIC PATTERNS

Traffic patterns shall be established by the FAA only at those airports where the provisions of part 91 do not meet aircraft airspace requirements. When the airspace review indicates the need, traffic patterns may be established by special rule in part 93; or as outlined in this order when necessary to ensure compatibility of aircraft operations with adjacent airports, or for reasons of obstructions, terrain, traffic separation, or noise abatement. Use the guidelines in paragraph 10-3-2 to evaluate whether the traffic pattern associated with an airport proposal would conflict with operations at any other airport. Also, evaluate the traffic pattern effect on instrument approach procedures and the need for establishment of traffic pattern altitudes for aircraft separation. The regional ATD normally reviews proposals for traffic pattern conflicts.

11-1-3. INSTRUMENT FLIGHT PROCEDURES

a. Existing and proposed structures or objects must be evaluated for their effect on the airport proposal in reference to instrument procedures. FPOs normally conduct this by applying the standards and criteria contained in the 8260 Order series to ascertain if the airport proposal would adversely affect existing or planned instrument approach procedures. Use the same guidelines to evaluate the. compatibility of any existing or proposed instrument approach procedure with the airport proposal.

b. Air Traffic and Flight Procedures personnel shall be especially alert to ensure aircraft separation when the traffic pattern associated With an airport proposal would overlap the airspace encompassed by a standard instrument approach procedure (IAP) for an adjacent airport. When this occurs, Air Traffic will recommend actions to ensure that there is at least 500 feet vertical separation between the traffic pattern altitude and the altitude associated with the affected portion of the adjacent instrument approach procedure. If heavy jets are involved, ensure at least 1,000 feet vertical separation. These same vertical separation guidelines must be applied when evaluating a proposed IAP when the airspace required would overlap the traffic pattern airspace at an adjacent airport.

11-1-4. AIR TRAFFIC CONTROL PROCEDURES

The extent that an airport proposal or proposed instrument approach procedure may adversely affect air traffic control (ATC) procedures may be a sufficient reason to object to or disapprove a proposal. The proposal must be thoroughly examined to determine if it would adversely affect ATC procedures by requiring a restriction on the air traffic flow, or the proposal may limit the flexibility of entry or exit to or from affected traffic patterns or airport areas. The need for establishment of, or existing noise abatement procedures may amplify such problems. When a proposed instrument approach procedure would be adjacent to the area of an instrument approach procedure to another airport, determine whether simultaneous approaches would have an adverse effect on new IAP or ATC procedures and on the requirement for instrument approaches to the adjacent airport. Should a proposed instrument approach procedure be located in a radar environment, determine the radar coverage and ATC capability to provide radar air traffic control service,

11-1-5. SAFETY OF PERSONS AND PROPERTY ON THE GROUND

In accordance with 40103(b)(2)(B), FAA personnel must evaluate the effect of a proposal on the safety of persons and property on the ground. Consideration must be given to the proximity of cities and towns, as well as flight patterns over heavily populated areas, schools, homes, hospitals, sports stadiums, outdoor theaters, and shopping centers. The evaluation

must also include the effect of changes in flight operations required by the proposal and the need for special air traffic rules. In evaluating the compatibility of proposed airports and the surrounding terrain, consider the type of aircraft anticipated to use the airport; their operational performance capability; the effective runway lengths; and whether a reasonable level of safety of persons and property on the ground can be expected. Flight Standards and Airports normally conduct reviews to determine that the safety of persons and property on the ground are protected.

1 l-l-6. NOISE CONSIDERATION

Part 157 does not specify that noise factors be considered, however, the FAA policy to evaluate noise factors in airport airspace analysis studies should be preserved where necessary in the public interest as part of the overall FAA noise abatement program.

a. The Air Traffic Office shall identify potential noise problem areas based on existing, and/or contemplated traffic patterns and procedures. When a noise problem is anticipated, advise the airports office accordingly with recommendations and/or alternatives, such as nonstandard traffic patterns or special departure and arrival procedures, etc.

b. When an airport proposal is circularized, the Airports' Office may receive comments concerning potential noise, environmental, or ecological problems.

11-I -7. AERONAUTICAL ACTIVITY

The type of aeronautical activity expected at an airport is an important consideration in the airport analysis process. The following types of activity should be considered:

a. Will the proposed operations be conducted in accordance with visual or instrument flight rules?

b. What is the expected volume of operations?

c. How many and what type aircraft will be based on the proposed airport? Be aware that a large number of 'aircraft may be based at a private-use airport that could generate a significant amount of traffic.

d. What is the most demanding aircraft the airport will accommodate?

11-I-8. WIND ROSE DATA

a. Visual Flight Rules - Wind conditions affect aircraft in varying degrees. In landing and takeoff, the smaller aircraft are more affected by wind, particularly crosswind components. Therefore, when studying a runway proposal, evaluate the consistency between the proposed runway alignment and the wind rose data to determine whether operations can be conducted safely.

b. Instrument Flight Rules - When evaluating a proposal to designate a single instrument landing runway at an airport, consider the consistency between this designation and the low visibility wind rose.

11-1 -9. HELICOPTER INGRESS-EGRESS ROUTES

Proposed heliports require evaluation of ingress and egress information by Flight Standards. Information supplied **by** AVN may be used for determining whether specific ingress-egress routes to and from heliports and helipads may be necessary to assure an adequate level of safety with respect to obstructions and/or congested areas.

Additionally, consider existing air traffic operations in proximity to a proposed heliport site and the need for specific ingress-egress routes.

II-I -10. DISPLACED THRESHOLDS AND CHANGING THE RUNWAY END

Consideration should be given to displacing a proposed runway threshold when proposed and existing objects, and/or terrain obstruct the airspace necessary for landing on or taking off from the runway. Consider changing the location of the proposed runway end only when no feasible alternatives exist (see AC 150/5300-13, Appendix 2).

1 I-1 -11. EXISTING AIRPORTS

Evaluation on the effect of existing airports shall be made in the same manner as for other non-Federally Assisted Airport proposals under the provisions of 49 U.S.C. Section 44718. Such studies may be conducted on those airports for which there is no record of a previous aeronautical study, or on any airport when deemed necessary or appropriate.

Section 2. PROCESSING OF AIRPORT PROPOSALS BY REGIONAL AIRPORTS OFFICES

11-2-I. PROPOSALS

Airport proposals received by any FAA office shall be forwarded to the appropriate Airports Office for initial processing and study.

NOTE-
Notification underpart 157 is not requiredforprojects on Federally-assisted airports.

a. General - The Airports Office, after receipt of a proposal, will check the information submitted for correctness, clarity, completeness, and proper detail. The Airports office will verify critical data or require proponents to verify any data deemed critical. The proponent may need to be contacted if insufficient information is submitted or if significant errors appear in the submission. The Airports Office shall maintain a record by list, map, or other method so that the status of new proposals may be easily correlated with existing airports, airports under construction, or other airport proposals.

b. Establishment of New Airports - Initial review concerning the proposed construction of new airports shall include but is not limited to the following:

1. Determining conformance of the proposal with agency design criteria;

2. Identifying the objects that exceed the obstruction criteria of part 77;

3. Anticipating the operational use of the airport, including the number and type of aeronautical operations and the number of based aircraft;

4. Ascertaining whether the airport is for private or public use;

5. Identifying runway and taxiway layout in relation to compass rose data, existing or proposed obstructions, or other airports;

6. Identifying known or anticipated controversial aspects of the proposal;

7. Identifying potential noise aspects;

8. Identifying possible conflict with airport improvement and/or development or other agency plans. The Airports Division, in the NRA proposal processing, will identify all seaplane bases that may be impacted by part 157 proposals or other development on public use airports. If the airspace study reveals that a seaplane base is adversely impacted, the Airports Division will notify the seaplane base owner of the NRA proposal and the potential conflict; and

9. Obtaining runway threshold coordinates and elevations.

c. Alteration of Existing Airports - The nature and magnitude of an existing airport alteration will determine the extent of processing and analysis required. Alteration, such as new runway construction; runway realignment projects; runway extension; runway upgrading; change in status, such as VFR to IFR use; and widening of runways or taxiway/ramp areas normally require the same type of processing and study as that required for new airport construction proposals.

d. Deactivation and Abandonment of Airports -

1. Airport owners/sponsors are required to notify the FAA concerning the deactivation, discontinued use, or abandonment of an airport, runway, landing strip, or associated taxiway. On partial or specific runway deactivation proposals, a description with a sketch or layout plan, and the anticipated operational changes should be forwarded together with any other pertinent information needed to update agency records.

2. When it is believed that an airport is abandoned or unreported and appropriate notification has not been received, the Airports Office, after making a reasonable effort to obtain such notification, shall advise the Air Traffic Office of the situation by memorandum. The memorandum should contain a statement that the airport is considered either abandoned or unreported. Forward a copy of the memorandum to the airport owner or sponsor, ATA-100, and the Airport Safety Data Branch, ALAS-330.

e. Construction safety plans are received as appropriate for Airport Improvement Program requests for aid, and the Airports Regional Capital Improvement Program.

f. Other Airport Notices - Occasionally, an airport owner/sponsor will make alterations or changes to the airport without filing notice in accordance with part 157. Generally, this information will be obtained through the airport safety data program (FAA Form 5010) and after-the-fact, From a legal standpoint, this constitutes notice to the FAA and appropriate action is necessary. The Airports Office shall initiate a study of such information received in the same manner as if the notice had been received under part 157 requirements.

1 I-2-2. AIRPORT LAYOUT PLANS (ALP)

ALPs generally show the location, character, dimensions, details of the airport, and the work to be done. The extent of information needed for any specific airport development will vary depending on the scope and character of the project, plus the anticipated role and category of the airport. Detailed information on the development of ALPs is contained in AC 150/5070-6, Airport Master Plans; and AC 150/5300-13, Airport Design.

a. Non-Federally Assisted Airports - Airports personnel will take into consideration an ALP, or plan on file in developing a determination with reference to the safe and efficient use of airspace.

b. Federally Assisted Airports - Projects at Federally assisted airports require review based on considerations relating to the safe and efficient utilization of airspace, factors affecting the control of air traffic, conformance with FAA design criteria, and Federal grant assurances or conditions of a Federal property conveyance. The product of this review is derived from analysis of information supplied in the ALP. A formal or tentative determination may be given depending on the complexity of the proposal or the timing of the request. The review and subsequent determination shall be made as expeditiously as possible to facilitate processing of the project request. Normally a project is not placed under grant, nor Federal property conveyed until a favorable determination is made and the ALP approved.

c. Extent of Review - A review is normally required for all proposals involving new construction or relocation of runways; taxiways; ramp areas; holding or run-up apron projects; airport and runway lighting and marking; fire and rescue building locations; and other projects affecting, or potentially affecting, the movement of aircraft. At all public-use airports, projects which conform to a previously approved non-objectionable airport layout plan for the construction or resurfacing of existing airport paving, site preparation work, or paving to overlie existing unpaved landing strips may be omitted from the normal review process. For an airport that has a construction safety plan, the plan needs to undergo the review process with appropriate FAA offices (see AC 150/5370-2, Operational Safety On Airports During Construction).

11-2-3. NON-PART 157 PROPOSED CONSTRUCTION OR ALTERATION ON NON-OBLIGATED PUBLIC-USE AIRPORTS

Sponsors/proponents of non-part 157 proposals for construction or alteration on public-use airports are required to file notice with the FAA in accordance with part 77.13 (a)(5). The appropriate Airports Office will process these proposals in accordance with- procedures established for part 157 proposals. Generally, these proposals will be submitted on FAA Form 7460-1, along with appropriate drawings and necessary supporting documentation. The procedures contained in part 2 of this order are not applicable to such proposals. However the information contained in part 2 may be helpful to airports personnel in applying the obstructions standards of Sections 77.23(a)(2), 77.23(a)(5), 77.25, 77.28, and 77.29.

11-2-4. FAA COORDINATION

Upon receipt of a part 157 proposal or a change to an ALP, the appropriate Airports Office shall assign an aeronautical study number; ensure that the proposal is complete and correct; review the proposal from an airport's planning viewpoint and the effect on airport programs; enter the proposal into the OE/AAA automation program; and forward a proposal package with comments to the appropriate FAA offices (e.g., Air Traffic, Flight Procedures, Flight Standards, and Airway Facilities Offices) for processing. Other organizations to consider in the review process are (if applicable) the Airport Traffic Control Tower (ATCT), System Management Office (SMO), Civil Aviation Security Field Office (CASFO), Military representatives, and Airports Certification

b. Objectionable - Include the following statement in the determination forwarded to the proponent: "This is a determination with respect to the safe and efficient use of navigable airspace by aircraft, and with respect to the safety of persons and property on the ground. In making this determination, the FAA has considered matters such as the effect the proposal would have on existing or planned traffic patterns of neighboring airports; the effects it would have on the existing airspace structure and projected programs of the FAA; the effects it would have on the safety of persons and property on the ground, and the effects that existing or proposed manmade objects (on file with the FAA) and natural objects within the affected area would have on the airport proposal."

c. Notice of Completion - Include a reminder that the sponsor is required to notify the nearest Airport District Office (ADO) or regional office within 15 days after completion of the project. For a part 157 airport, this is accomplished by returning the FAA Form 5010-5 to the appropriate Airport office.

12-I-6. AIRPORT MASTER RECORD

When appropriate, enclose within the determination, FAA Form 5010, Airport Master Record, and include a statement in the determination letter providing the sponsor guidance on its use.

12-I-7. ADVISE FEDERAL AGREEMENT AIRPORT SPONSORS

When a determination is sent to the sponsor, include the following additional statement:

"This determination does not constitute a commitment of Federal funds and does not indicate that the proposed development is environmentally acceptable in accordance with applicable federal laws. An environmental finding is a prerequisite to any major airport development project when Federal aid will be granted for the project. This approval is given subject to the condition that the proposed airport development identified below shall not be undertaken without prior written environmental approval by the FAA. These items include [list items] (see FAA Order 5050.4A, Chapter 3, for more information)."

12-I-8. DISSEMINATION OF STUDY RESULTS

The Airports Office shall make available to FAA offices that participated in the study a copy of each determination issued. Include a copy to AAS-330 for part 157 proposals. AAS-330 shall be provided a copy of the entire airspace determination when the FAA Form 501 O-5, is returned from the proponent. Additionally, the results of an airport study circularized outside the FAA or discussed in an informal meeting should be disseminated by the Airports Office to those persons/offices on the circular distribution list, attendees at the informal airspace meeting, and any other interested person, as soon as feasible after the sponsor has been notified. Outside of agency distribution shall be in the form of a notice "To All Concerned." Include in the notice the aeronautical study number together with a brief summary of the factors on which the determination was based and a recital of any statement included in the determination. In addition, if a conditional statement concerning environmental acceptability has been included in the determination to the proponent, include a similar statement in the notice.

12-I-9. REVIEW OF SENSITIVE OR CONTROVERSIAL CASES AND PART 157 DETERMINATIONS

a. A proponent of an airport proposal or interested persons may, at least 15 days in advance of the determination void date, petition the FAA official who issued the determination to:

1. Revise the determination based on new facts that change the basis on which it was made; or

2. Extend the determination void date. Determinations will be furnished to the proponent, aviation officials of the state concerned, and, when appropriate, local political bodies and other interested persons.

b. The petition must be based on aeronautical issues and will not be accepted after airport construction has begun. The appropriate

regional office should attempt to resolve the issue(s) in the following manner:

1. Informal Meeting - The Airports Office should hold a special informal airspace meeting with all interested parties when requested. Emphasize that the scope of an airport study analysis is limited, and that the FAA's determination is based on the safe and efficient use of navigable airspace by aircraft and the safety of persons and property on the ground (see paragraph 12-1-5). The Air Traffic Office shall assist in the meeting when requested by Airports.

2. Reevaluate -- Reevaluate the airport proposal if any new factors regarding the safe and efficient use of the airspace become known as a result of the informal meeting. Affirm or revise the original determination as appropriate.

3. Public Hearing - The regulations provide no right to, or procedures for, a public hearing regarding airport matters. An airport airspace determination is only advisory and for the FAA's own use. Circularization and, where required, informal airspace meetings should be sufficient to provide interested persons a forum to present their views. When Federal funds are, or will be involved in the airport or its development, there is a right to a public hearing on site location, but no similar right exists to a hearing on airspace matters. If a party is emphatic in their demand for a public hearing ATA-1, through the regional ATD, should be notified and there shall be no implication made that a hearing may be granted. It is general policy not to grant such hearings. However, should circumstances dictate otherwise, ATA- 1 would direct the conduct of the hearing to be informal in nature, not within the scope of the Administrative Procedures Act, and the subject matter would be limited to the scope of the airspace analysis (i.e., the safe and efficient use of **navigable** airspace by aircraft).

12-I-10. DISPOSAL OF FEDERAL SURPLUS REAL PROPERTY FOR PUBLIC AIRPORT PURPOSES

a. Site Endorsement - The FAA shall study, and officially endorse the site before property interest **in** land owned and controlled by the United States is conveyed to a public agency for public airport purposes.

b. Processing Procedures - Surplus Federal property cases shall be processed in the same manner as Federal airport proposals.

Part 4. TERMINAL AND EN ROUTE AIRSPACE

Chapter 14. DESIGNATION OF AIRSPACE CLASSES

Section 1. GENERAL

14-1-I. PURPOSE

In addition to the policy guidelines and procedures detailed in part 1 of this order, this part prescribes specific policies and procedures for managing terminal and en route airspace cases.

14-I -2. DEFINITIONS

a. CONTROLLED AIRSPACE - An airspace of defined dimensions within which ATC service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

1. Controlled airspace is a generic term that covers Class A, Class B, Class C, Class D, and Class E airspace areas.

2. Controlled airspace is also that airspace within which all aircraft operators are subject to certain pilot qualifications, operating rules, and equipment requirements in 14 CFR part 91 (for specific operating requirements, please refer to 14 CFR part 91). For IFR operations in any class of controlled airspace, a pilot must file an IFR flight plan and receive an appropriate ATC clearance. Each Class B, Class C, and Class D airspace area designated for an airport contains at least one primary airport around which the airspace is designated (for specific designations and descriptions of the airspace classes, please refer to 14 CFR part 71).

3. Controlled airspace in the United States is designated as follows:

(a) CLASS A AIRSPACE AREA - Generally, that airspace from 18,000 feet MSL up to and including FL 600, including the airspace overlying the waters within 12 nautical miles (NM) of the coast of the 48 contiguous States and Alaska. Unless otherwise authorized, all persons must operate their aircraft under IFR.

(b) CLASS B AIRSPACE AREA - Generally, that airspace from the surface to 10,000 feet mean sea level (MSL) surrounding the nation's busiest airports in terms of airport operations or passenger enplanements. The configuration of each Class B airspace area is individually tailored, and consists of a surface area and two or more layers, and is designed to contain all published instrument procedures. An ATC clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace. The cloud clearance requirement for VFR operations is "clear of clouds."

(c) CLASS C AIRSPACE AREA - Generally, that airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and that have a certain number of IFR operations or passenger enplanements. Although the configuration of each Class C area is individually tailored, the airspace usually consists of a surface area with a 5 NM radius, and an outer circle with a 10 NM radius that extends from 1,200 feet to 4,000 feet above the airport elevation. Each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while within the airspace,

(d) CLASS D AIRSPACE AREA - Generally, that airspace from the surface to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower., The configuration of each Class D airspace area is individually tailored and when instrument procedures are published, the airspace will normally be designed to contain the procedures. Arrival extensions for instrument approach procedures may be Class D or Class E airspace. Unless otherwise authorized, each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain

those communications while in the airspace. No separation services are provided to VFR aircraft.

(e) CLASS E AIRSPACE AREA - Generally, if the airspace is not Class A, Class B, Class C, or Class D, and it is controlled airspace, it is Class E airspace. The types of Class E airspace areas are:

(1) Surface Area Designated for an Airport - When designated as a surface area for an airport, the airspace will be configured to contain all instrument procedures.

(2) Extension to a Surface Area - There are Class E airspace areas that serve as extensions to Class B, Class C, and Class D surface areas designated for an airport. Such airspace provides controlled airspace to contain standard instrument approach procedures without imposing a communications requirement on pilots operating under VFR.

(3) Airspace Used for Transition - There are Class E airspace areas beginning at either 700 or 1,200 feet AGL used to transition to/from the terminal or en route environment.

(4) En Route Domestic Airspace Areas - Class E airspace areas that extend upward from a specified altitude to provide controlled airspace where there is a requirement for IFR en route ATC services, but where the Federal airway system is inadequate.

(5) Federal Airways - Federal airways are Class E airspace areas, and, unless otherwise specified, extend upward from 1,200 feet to, but not including, 18,000 feet MSL. The colored airways are green, red, amber, and blue. The VOR airways are classified as Domestic, Alaskan, and Hawaiian.

(6) Unless designated at a lower altitude, Class E airspace begins at 14,500 feet MSL to, but not including 18,000 feet MSL overlying: the 48 contiguous States, including the waters within 12 miles from the coast of the 48 contiguous States; the District of Columbia; Alaska, including the waters within 12 miles from the coast of Alaska, and that airspace above FL 600; excluding the Alaska peninsula west of long. 160°00'00"W., and the airspace below 1,500 feet above the surface of the earth unless specifically so designated,

(7) Offshore/Control Airspace Areas - Airspace areas beyond 12NM from the coast of the United States, wherein ATC services are provided.

b. UNCONTROLLED AIRSPACE -

1. CLASS G AIRSPACE AREA - Airspace that has not been designated as Class A, Class B, Class C, Class D, or Class E airspace.

14-I-3. GOVERNING CRITERIA

Controlled airspace in terminal areas shall be designated, modified, or discontinued in accordance with the policy, procedures, and criteria contained herein.

14-I-4. FRACTIONAL MILES

Unless otherwise stated, all distances are nautical miles. When figuring the size of surface areas and Class E airspace or their extensions, any fractional part of a mile shall be converted to the next higher 0.1 mile increment.

EXAMPLE-
3.62 miles would be considered to be 3.7 miles.

14-I-5. AIRSPACE LEGAL DESCRIPTION

a. **A** text header shall be used and include the following information:

1. On line one:

(a) FAA routing symbol of the region.

(b) Two letter abbreviation of the state.

(c) Type of airspace.

2. **On** line two: Enter the name of the airport and, if different, preceded by the name of the city.

3. If applicable, **on** line three: Enter the **geographic** coordinates for the reference used to describe the airspace, that is, geographic position, airport reference point, NAVAID, etc.

4. If applicable, on subsequent lines: Enter any NAVAID or airport, including geographic coordinates, used in the legal description.

b. State vertical limits in the first sentence of the text.

c. Do not restate geographic coordinates used in the text header in the legal description text.

Chapter 15. CLASS B AIRSPACE

Section 1. General

15-I -1. PURPOSE

a. The primary purpose of a Class B airspace area is to reduce the potential for midair collisions in the airspace surrounding airports with high density air traffic operations. Aircraft operating in these airspace areas are subject to certain operating rules and equipment requirements.

b. Additionally, Class B airspace areas are designed to enhance the management of air traffic operations to and from the airports therein, and through the airspace area.

15-I-2. REGIONAL EVALUATION

a. Regional ATD shall biennially evaluate existing and candidate Class B airspace areas using the information contained in this chapter as a guideline.

b. If the conclusion of an evaluation indicates that airspace modifications should be made, regions shall follow the applicable procedures in this order.

c. Additionally, any planned modifications to, or establishments of, Class B airspace areas shall be coordinated with ATA-400 prior to any public announcement.

Section 2. CLASS B AIRSPACE STANDARDS

15-2-1. CRITERIA

a. The criteria for considering a given airport as a candidate for a Class B airspace designation must be based on factors that include the volume of aircraft and number of enplaned passengers, the traffic density, and the type or nature of operations being conducted.

b. For a site to be considered as a new Class B airspace candidate, the following criteria must be met:

1. The primary airport serves at least 3.5 million passengers enplaned annually; or

2. The primary airport has a total airport operations count of 300,000 (of which 50 percent are air carriers).

NOTE-
Operation counts are availablefrom the Office of Aviation Policy, APO-1 IO. Enplaned passenger counts may be obtained by contacting the Office of Airport Planning and Programming Division, APP-400. Current validated counts are normally available in mid-October of the current year for the previous year.

c. Although an airport meets the minimum passenger and air traffic operations criteria for a Class B designation, other factors must be considered, such as: would a Class B designation contribute to the efficiency and safety of operations in the area; and is there a current situation or problem that cannot be solved without the designation of Class B airspace?

15-2-2. DESIGNATION

Class B airspace area locations shall include at least one primary airport around which the Class B airspace area is designated.

15-2-3. CONFIGURATION

a. General Design - Simplification of the Class B airspace area configuration is a prime requisite. Its vertical and lateral limits should be standardized and shall be designed to contain all instrument procedures within Class B airspace. The number of sub-areas should be kept to a minimum.

b. Lateral Limits - This airspace should be initially designed in a circular configuration centered on the primary airport. Describe the airspace area using NAVAIDs as references where available on the primary airport in the following order of preference: VORTAC, VOR/DME, etc.

1. The outer limits of the airspace shall not exceed a 30 NM radius from the primary airport.

2. This 30 NM radius will generally be divided into three concentric circles: an inner 10 NM radius, a middle 20 NM radius, and an outer 30 NM radius.

3. The inner 10 NM radius area may be subdivided based on operational needs, runway alignment, adjacent regulatory airspace, or adjacent airports.

4. The areas between 10 to 20 NM and 20 to 30 NM may be vertically subdivided because of terrain or other regulatory airspace.

c. Vertical Limits - The upper limit of the airspace normally should not exceed 10,000 feet MSL. The inner 10 NM area shall normally extend from the surface to the upper limits of the airspace. This segment may be adjusted to coincide with runway alignment, adjacent airports, other regulatory airspace, etc., but shall encompass, as a minimum, all final approach fixes and minimum altitudes at the final approach fix. The floor of the area between 10 and 20 NM shall be predicated on a 300-foot per NM gradient for 10 NM. This segment will normally have a floor between 2,800 feet and 3,000 feet above airport elevation. This floor shall remain constant for that segment, but may be adjusted considering terrain and adjacent regulatory airspace. However, segmentation should be held to an absolute minimum. The floor of the area between 20 and 30 NM shall be at an altitude consistent with approach control arrival and departure procedures. It is expected that this floor would normally be between 5,000 and 6,000 feet above airport elevation. In the segment between 20 and 30 NM, exclusions are permitted to accommodate adjacent regulatory airspace and/or terrain.

d. Variations - Any variation from the standard configuration shall be addressed in the staff study.

e. Satellite Airports - When establishing the airspace floor, consider the adverse effect on satellite airport operations as well as operations at the primary airport. When airspace directly over a satellite airport is not required, it should be excluded from the Class B airspace. Special published traffic patterns and/or procedures may be required for satellite airports.

Chapter 16. CLASS C AIRSPACE

Section 1. GENERAL

16-1-1. PURPOSE

Class C airspace areas are designed to improve aviation safety by reducing the risk of midair collisions in the terminal area and enhance the management of air traffic operations therein.

16-I-2. NONRULEMAKING ALTERNATIVES

Before initiating rulemaking actions to establish Class C airspace, exhaust all nonrulemaking alternatives that provide for an acceptable level of safety and are consistent with the objectives of standardization and simplification. Such alternatives include, for example, the following actions:

a. Improved radar services.

b. Pilot/controller education programs and aviation education safety seminars.

16-I -3. REGIONAL EVALUATION

a. Regional ATD shall biennially evaluate existing and candidate Class C airspace areas using the information contained in this chapter as a guideline.

b. If the conclusion of an evaluation indicates that airspace establishment or modifications should be made, regions shall follow the applicable procedures in this order.

c. Additionally, any planned modifications to or establishments of Class C airspace areas shall be coordinated with ATA-400 prior to any public announcement.

16-1-4. CLASS C AIRSPACE

a. A provision may be incorporated in part-time Class C airspace area designations (rules) to allow, by Notices to Airmen, for changes when minor variations in time of designation are anticipated. To apply this provision, a Notice of Proposed Rulemaking and final rule shall be issued which provides the following statement in the specific airspace designation: "This Class C airspace area is effective during the specific dates and times established, in advance, by a Notice to Airmen."

b. The effective date and time will thereafter be continuously published. Information concerning these surface areas shall be carried in the following publications as applicable:

1. The Airport/Facility Directory for the contiguous United States, Puerto Rico, and Virgin Islands.

2. United States Flight Information Publication Supplement Alaska.

3. The Pacific Chart Supplement.

c. Notices to Airmen specifying the dates and times of a designated part-time area may be issued by the appropriate facility only after coordination with the regional office. The regional ATD shall assure that such action is justified and in the public interest.

Chapter 17. CLASS D AIRSPACE

Section 1. GENERAL

17-1-1. PURPOSE

Class D airspace areas are terminal airspace that consist of specified airspace (i.e., Surface Areas) within which all aircraft operators are subject to operating rules and equipment requirements. Regional ATD are responsible for the coordination and implementation of Class D airspace designations.

a. Generally, a surface area is designated Class D airspace to provide controlled airspace for terminal VFR or IFR operations at airports having a control tower.

b. For non-towered airports requiring a surface area, the airspace will be designated Class E airspace and identified as either Class E2, E3, or E4 (see Order 7400.9, Airspace Designations and Reporting Points).

c. The designation of navigable airspace outside of the United States is the responsibility of ATA-400 (e.g., U.S. territories).

17-I-2. REGIONAL EVALUATION

a. Regional ATD shall biennially evaluate existing and candidate Class D airspace areas using the information contained in this chapter as a guideline.

b. If the conclusion of an evaluation indicates that airspace modifications should be made, regions shall follow the applicable procedures in this order.

17-I-3. DESIGNATION

If the communications and weather observation reporting requirements of paragraphs 17-2-9 and 17-2- 10 are met, a surface area:

a. Shall be designated where a FAA control tower is in operation.

b. May be designated where a non-FAA control tower is in operation.

c. Shall be designated to accommodate instrument procedures (planned, published, special, arrival, and departure) if such action is justified and/or in the public interest. The following factors should be considered:

1. Type of procedure, including decision height or minimum descent altitude.

2. The actual use to be made of the procedure, including whether a certificated air carrier or an air taxi/commuter operator providing service to the general public uses it.

NOTE-
For special instrument procedures, consideration should be given to availability to other users.

3. The operational and economic advantage offered by the procedure, including the importance and interest to the commerce and welfare of the community.

4. Any other factors considered appropriate.

17-1-4. TIME OF DESIGNATION

Class D or surface areas may be designated full-time or part-time. If part-time, the effective time shall be stated in Coordinated Universal Time (UTC).

17-1-5. PART TIME SURFACE AREAS

a. A provision may be incorporated in part-time Class D surface area designations (rules) to allow, by Notices to Airmen, for changes when minor variations in time of designation are anticipated. To apply this provision, a Notice of Proposed Rulemaking and final rule shall be issued which provides the following statement in the specific airspace designation: "This surface area is effective during the specific dates and times established, in advance, by a Notice to Airmen."

b. The effective date and time will thereafter be continuously published. Information concerning these surface areas shall be carried in the following publications as applicable:

1. The Airport/Facility Directory for the contiguous United States, Puerto Rico, and Virgin Islands.

2. United States Flight Information Publication Supplement Alaska.

3. The Pacific Chart Supplement.

c. Notices to Airmen specifying the dates and times of a designated part-time area may be issued by the appropriate facility only after coordination with the regional office. The regional ATD shall assure that such action is justified and in the public interest.

Section 3. TRANSITIONAL AIRSPACE AREA CRITERIA

18-3-l. DEPARTURE AREA

a. The configuration of Class E airspace for departures is based on either specific or diverse departure routings, and determines whether the Class E airspace will be circular or oriented in one or more specific direction(s).

b. A climb gradient of 200 feet per NM shall be applied to determine the size of all Class E airspace for departures, and, when necessary, departure extensions. Specific departure areas with a base of 700 feet require the airspace 1.8 NM each side of the track centerline. Departure areas with a base of 1,200 feet require 4 NM each side of the track centerline.

c. When a surface area does not exist, the climb gradient shall be applied from the departure end of. the outermost runway to determine the width of the 700-foot Class E airspace and the beginning of the 1,200-foot Class E airspace.

d. The lateral boundary of a 1,200-foot Class E airspace that overlies the waters within 12 NM of the coast of the 48 contiguous states and Alaska, excluding the Alaskan Peninsula west of longitude 160 degrees, shall terminate at 12 NM.

e. In the western states where the floor of controlled airspace is 14,500 MSL or 1,500 AGL, the 1200-foot airspace should be route oriented and normally only necessary between the 700-foot Class E airspace and the closest adjacent existing controlled airspace.

NOTE-
Where diverse departures are authorized, the 700-foot Class E airspace will normally be a 2.5 NM radius beyond the radius of the basic surface areas. This standard does not apply to surface **areas** *associated with Class C airspace.*

18-3-2. LENGTHY DEPARTURE CLASS E AIRSPACE EXTENSIONS

If lengthy Class E airspace extensions are established for departing flights, they shall include the additional airspace within lines diverging at angles of 4.5 degrees from the centerline of the route radial, beginning at the associated NAVAID. In planning such extensions, the same frequency protection considerations involved in airway planning must be included.

NOTE-
Tke 4.5-degree angle leaves an 8 NM wide area at 51 NM from the associated NAVAID.

18-3-3. ARRIVAL AREA

The point at which a flight can be expected to leave 1,500 feet above the surface on an instrument approach and the width of the primary obstruction clearance area shall be obtained from the office responsible for developing the instrument approach.

18-3-4. ARRIVAL EXTENSION

Class E airspace extension with a base of 1,200 feet above the surface and 4 NM each side of the track centerline shall be established to contain the flight path of arriving IFR flights at altitudes at least 1,500 feet or higher above the surface.

a. To determine length of an arrival extension, one needs:

1. The point at which a flight can be expected to leave 1,500 feet above the surface; and

2. The airspace needed to contain arriving IFR operations at 1,500 feet and higher above the surface.

b. The extension length shall be based on the approach requiring the greatest distance when multiple approach procedures (e.g., NDB/ILS) are established using the same approach course but with different final approach altitudes.

c. The width of the extension shall be equal to the width of the TERPS primary obstruction clearance area at the point where an IFR flight on an instrument approach can be expected to descend to less than 1,500 feet above the surface. However, if the primary area widens between the point where the flight leaves 1,500 feet and the airport, the widest portion of the primary area shall be used for the extension. Extensions shall, in all cases, extend to a minimum of 1 NM on each side of the centerline, although the primary obstruction clearance area extends less than 1 NM from the centerline.

d. The extension width shall be based on the approach requiring the greatest width when multiple approach procedures (e.g., NDB/ILS) are established using the same approach course.

18-3-5. PROCEDURE TURN PROTECTION

Class E airspace extensions shall be established for the protection of low altitude procedure turn areas as follows:

a. Procedure turns authorized to a distance of 5 NM or less:

1. The boundary on the procedure turn side is 7 NM from, and parallel to, the approach course.

2. The boundary on the side opposite the procedure turn side is 3 NM from, and parallel to, the approach course.

3. The outer limit is established at 10 NM outbound from the procedure turn fix.

b. Procedure turns authorized to a distance greater than 5 NM:

1. The boundary on the procedure turn side is 8 NM from, and parallel to, the approach course.

2. The boundary on the side opposite the procedure turn is 4 NM from, and parallel to, the approach course.

3. The outer limit is established at 16 NM outbound from the procedure turn fix. This length is extended 1 NM and the width is widened 0.2 (2/10) of a NM for each NM beyond 10 NM that the procedure turn is authorized.

18-3-6. DETERMINING BASE ALTITUDES

In determining the base altitude of Class E airspace designated to encompass procedure turns, it is only necessary to consider governing terrain within the TERPS primary obstruction clearance area, excluding the entry zone, rather than terrain within the entire rectangular areas specified above.

Chapter 19. OTHER AIRSPACE AREAS

Section 1. GENERAL

19-1-1. EN ROUTE DOMESTIC AIRSPACE AREAS

a. En Route Domestic Airspace Areas consist of Class E airspace that extends upward from a specified altitude to provide controlled airspace in those areas where there is a requirement to provide IFR en route ATC services, but the Federal airway structure is inadequate. En Route Domestic Airspace Areas may be designated to serve en route operations when there is a requirement to provide ATC service but the desired routing does not qualify for airway designation. Consideration may also be given to designation of En Route Domestic Airspace Areas when:

1. The NAVAIDs that are not suitable for inclusion in the airway system, but are approved under part 17 1, are placed in continuous operation, and are available for public use; or

2. Navigation is by means of radar vectoring.

b. En Route Domestic Airspace Areas are designated under 14 CFR Section 71.71 and are listed in Order 7400.9.

19-1-2. OFFSHORE/CONTROL AIRSPACE AREAS

a. Offshore/Control Airspace Areas are locations designated in international airspace (between the U.S. 12-mile territorial limit and the CTA/FIR boundary, and within areas of domestic radio navigational signal or ATC radar coverage) wherein domestic ATC procedures may be used for separation purposes.

b. These areas provide controlled airspace where there is a requirement to provide IFR en route ATC services, and to permit the application of domestic ATC procedures in that airspace.

c. Class A Offshore/Control Airspace Areas are identified as "High" (e.g., Atlantic High; Control 1154H). Class E areas are identified as "Low" (e.g., Gulf of Mexico Low, Control 1141L).

d. Since there is no standard established for offshore routes NAVAID spaeing, such spacing should be determined on a regional, site-by-site basis.

e. In determining which configuration to use, consider user requirements; NAVAID quality and dependability; radar vectoring capabilities; transition to/from offshore airspace areas; requirements of other users for adjacent airspace; and possible future requirements for controlled airspace.

f. Offshore/Control areas that require use of one NAVAID for an extended distance should be based on L/MF facilities so that lower MEAs can be established.

NOTE-
Care should be exercised in relocating NAVAIDs on which offshore airspace areas are based so that the desired offshore airspace configuration can be retained.

g. Where Offshore/Control Class E airspace is extended to the domestic/oceanic boundary, the diverging lines shall terminate at their intersection with the domestic/oceanic boundary.

19-I-3. DESIGNATION

Offshore control airspace areas are designated in Sections 71.33 and 71.71. These areas are listed in Order 7400.9.

19-I-4. PROCESSING

Offshore airspace area rulemaking actions are processed by ATA-400. Regions may process those domestic cases that are ancillary to a terminal airspace action with approval of ATA-400.

Chapter 20. AIR NAVIGATIONAL ROUTES

Section 1. GENERAL

20-I -1. PURPOSE

a. This chapter prescribes procedures and criteria for the designation/establishment of Air Traffic Service (ATS) routes.

b. An ATS route is defined as a route designed for the management of air traffic operations or for the provision of air traffic services.

c. An ATS route may be a low/medium frequency (L/MF) route (which includes colored Federal airways), Very High Frequency Omnidirectional Range (VOR) Federal airways and jet routes, or an area navigation (RNAV) route.

d. Criteria and procedures for the development of an air navigation route(s) are contained in FAA Orders 8260.3, Terminal Instrument Procedures; and 8260.19, Flight Procedures and Airspace, unless otherwise specified.

20-I -2. CONTROLLED AIRSPACE

a. ATS routes shall only be established in controlled airspace.

b. Where necessary, regions shall initiate the required action to designated controlled airspace of sufficient dimension to encompass the airspace to be protected and any associated course changes for ATS routes. This information shall be forwarded to ATA-400 for processing.

20-I-3. WHEN TO DESIGNATE AIR NAVIGATION ROUTES

ATS routes should be designated to serve en route operations when:

a. The route is predicated upon NAVAIDs that are suitable for inclusion in the system.

b. The benefits of the designation should outweigh any adverse effects to other airspace 'users, and:

1. The route is a normal extension of an existing airway; or

2. Users will benefit from charted information pertaining to navigational guidance, minimum en route altitudes, and changeover points.

20-I -4. RESPONSIBILITIES

a. Regional ATD:

1. Shall coordinate ATS routes with appropriate offices to determine if operational requirements and air traffic warrant a rulemaking action (e.g., ATC facilities, adjacent regional offices, and regional Frequency Management Offices).

2. Early coordination should be effected with Flight Operations to ensure timeliness of input.

3. Shall maintain a program of systematic review of all ATS routes in their respective regions and initiate action to designate or adjust these routes as necessary.

b. Regional FPO shall process ATS route requests 'in accordance with appropriate FAA orders.

20-I -5. ROUTE IDENTIFICATION

Dual designation of ATS routes shall be avoided. All alpha-numeric ATS route identifications shall be assigned by ATA-400 as follows:

a. Identify ATS routes based on L/MF NAVAIDs by color names (e.g. Amber, Blue, Green, and Red) **followed** by a number designation.

1. Designate those routes extending east and west as Green or Red.

2. Designate those extending north and south as Amber or Blue.

b. Identify ATS routes based on VOR NAVAIDs as follows:

1. Route lettering shall be as follows:

(a) The letter "V" will prefix low altitude ATS routes below FL 180.

(b) The letter "J" will prefix high altitude ATS routes at FL180 through FL450.

2. Route numbering shall be as follows:

(a) Assign even numbers for those ATS routes extending east and west.

(b) Assign odd numbers for those ATS routes extending north and south.

c. Identify RNAV ATS routes as follows:

1. With an "R" suffix.

2. Route numbering shall follow the guidelines detailed in paragraph 20-l-5 .b. 1 .a and b.2.

20-1-6. CHANGEOVER POINTS

When it is anticipated that the location of a changeover point will affect the lateral extent of an airway, en route domestic airspace area, offshore airspace area, or airspace to be protected for a jet route, the ATD shall include the location in the proposal.

20-I-7. BASE ALTITUDES

a. The base of **an ATS** route **shall be at** least 1,200 feet above the surface and at least 500 feet below the minimum en route altitude (MEA) except that route floors may **be** established no less than 300 feet below the MEA when:

1. The 500-foot buffer would result in the loss of a cardinal altitude; or

2. A definite operational advantage would exist.

b. The route floor should conform, as closely as possible to the floor of transitional airspace.

20-I-8. MINIMUM EN ROUTE ALTITUDES (MEA)

a. Procedures for establishing MEAs are set forth in Orders 8260.3, TERPS, and 8260.19, Flight Procedures and Airspace.

b. When rounding **off** MEA to the nearest hundred feet results in vertical separation of not less than 45 1/251 feet between the floor of controlled airspace and the MEA, such separation is considered in compliance with the 500/300 feet specified.

c. The criteria for surface area size shown in FIG 17-2-1 and FIG 17-2-2 shall be used for determining airspace required for a climb from the surface to 500/300 feet below the MEA/MOCA.

d. Use the criteria and procedures contained in appropriate FAA Orders for determining the airspace required for climb from one MEA to 500 feet below the higher MEA.

20-I-9. PROCEDURAL REQUIREMENTS

Procedural requirements may dictate designation of airspace lower than 500 feet below the MEA or **MRA** in certain en route radar vectoring areas or when necessary to accommodate climb or descent operations. Such airspace shall not be designated for the specific purpose of including a MOCA unless use of the MOCA is procedurally required.

20-I-10. ACTION TO RAISE BASE OF TRANSITIONAL AREAS

When action is initiated to raise the base of transitional airspace associated with a route segment, care shall be taken to designate, in accordance with applicable criteria, sufficient airspace to encompass IFR procedures prescribed for airports which underlie the route. Additionally, care shall be taken to ensure that controlled airspace, such as transition airspace or lower floor of control area, is provided for aircraft climbing from one minimum en route altitude to a higher one.

Section 3. LOW/MEDIUM FREQUENCY and VOR AIRWAYS

20-3-1. NAVAID SPACING

a. VOR Federal airways are based on NAVAIDs which normally are spaced no farther apart than 80 NM. They may be based on more widely spaced NAVAIDs if a usable signal can be provided and frequency protection afforded for the distance required (see Order 9840.1, U.S. National Aviation Handbook for the VOR/DME/TACAN Systems).

b. NAVAID spacing for L/MF airways has no standard but is determined on an individual basis.

20-3-2. VERTICAL AND LATERAL EXTENT

The standard vertical and lateral extent of these airways is specified in 14 CFR Section 71.75. Nonstandard dimensions may be specified as required except as limited by any flight inspection limitations and by paragraph 20-l-7 of this order.

20-3-3. WIDTH REDUCTIONS

a. Width reductions are not applicable to L/MF airways.

b. For ATS routes other than L/MF, a reduced airway width of 3 NM on one or both sides of the centerline may be established from the NAVAID to the point where 4.5 degree intersecting lines equal 3 NM (14 CFR Section 71.75). Normally, lines perpendicular to the airway centerline determine the ends of the reduced portion. If required, the ends of the reduced portion may be defined differently. A reduced width is permissible to obtain additional traffic capacity and flexibility through the use of multiple routes and to avoid encroachment on special use airspace or other essential maneuvering areas. Width reductions are considered the exception rather than the rule and are approved only where adequate air navigation guidance and justification exist.

Section 5. AREA NAVIGATION ROUTES

20-5-I. DISCUSSION

a. RNAV systems permit navigation via a selected course to a predefined point without having to fly directly toward or away from a navigational aid. Several different types of airborne systems are capable of accurate navigation on an area basis.

b. RNAV aircraft are required to have the capability of operating along, and within the lateral confines of VOR routes and airways. Therefore, current procedures and separation criteria remain the same for all RNAV aircraft cleared to operate along the conventional VOR route structure.

c. One item to be considered between area navigation and the present VOR/DME system is the effect of slant range error on aircraft position. Aircraft operating along the conventional VOR route structure are affected by DME slant range error in a relative manner and are primarily affected longitudinally since flightpaths are normally directly to or from ground stations. RNAV aircraft may be affected laterally as well as longitudinally since they do not have the disadvantage of having to operate directly to or from ground stations.

d. RNAV operations will use established and designated routes, up to and including FL 450, unless air traffic control radar is used to monitor navigation accuracy and aircraft separation.

e. A user must demonstrate that the equipment complies with accuracy criteria, and must receive approval before the equipment can be used in the ATC system.

20-5-2. WAYPOINT CRITERIA

a. In accordance with paragraph 3-3-4, of this order, obtain five-letter pronounceable waypoint name/codes approval from ATA- 100.

b. All magnetic bearings, distances between waypoints, and geographical coordinates of waypoints shall be validated by NACO.

c. Each waypoint shall be defined by geographical coordinates (e.g., degrees, minutes, seconds, hundredths of a second).

d. RNAV waypoints are used not only for navigation reference, but also for ATC operational fixes in much the same manner as VOR/DME ground stations and intersections are used in the conventional VOR structure. Waypoints are to be established along RNAV routes at:

1. The end points of RNAV routes;

2. Route turn points;

3. All holding fixes; and

4. At any other point of operational benefit, such as route junction points where required for route clarity.

20-5-3. LATERAL PROTECTED AIRSPACE CRITERIA FOR RNAV EN ROUTE SEGMENTS

a. The criteria contained in this section is applicable to all established or designated RNAV routes, except those portions of instrument departure procedures and Standard Terminal Arrival Routes (STARs) appropriate to the instrument departure procedures and STAR criteria. The lateral extent of RNAV routes designated in part 71 is coincident with the lateral protected airspace derived from this criteria.

b. The basic width of an RNAV route is 8 NM (4 NM on each side of the route centerline).

20-5-4. EN ROUTE TURN PROTECTION CRITERIA

Additional lateral airspace to be protected for course changes along RNAV routes at and above FL 180 shall be in accordance with Order 7130.2. The airspace to be protected on the overflown side of the route centerline during course changes of more than 1.5 degrees along RNAV routes below FL 180 shall be the lateral route width **or** 4 NM, whichever is greater, applied until the pilot reports on course. In effect, this means that the lateral dimensions of reduced route widths do not constitute fully protected airspace for aircraft during such course changes.

regulatory SUA proposals, except for those actions that clearly have no impact on aviation and are not controversial. A nonrulemaking circular or NPRM is not normally required for following types of proposals:

1. Changes to the using or controlling agency.

2. Editorial changes to correct typographical errors.

3. Internal subdivision of an existing area to enhance real-time, joint use (provided there is no change to the existing external boundaries) times of use, or type/level of activities.

4. Actions that lessen the burden on the flying public by revoking or reducing the size or times of **use of SUA.**

b. SUA nonrulemaking circulars are prepared and distributed by the regional ATD. FAA Headquarters prepares SUA NPRMs. Normally, circulars and NPRMs provide a minimum of 45 days for public comment.

c. When comments or coordination show that the proposal may be controversial, or there is a need to obtain additional information relevant to the proposal, an informal airspace meeting may be considered (see chapter 2 of this order).

21-1-14. SUA NONRULEMAKING CIRCULARS

a. Prepare and distribute SUA nonrulemaking circulars as specified in chapter 2 of this order and the additional requirements in this paragraph. Ensure wide dissemination to the potentially affected aviation user community. Send one copy of each SUA circular to ATA-400 and to the appropriate regional military representative(s).

b. CONTENT - Circulars should contain sufficient information to assist interested persons in preparing comments on the aeronautical impact of the proposal. SUA circulars should include:

1. A brief narrative that:

(a) Describes the purpose of the proposed airspace, the types of activities to be conducted, and the expected frequency of those activities. If the proposal modifies existing SUA, describe the changes and explain the desired result. For temporary MOA proposals, include a brief summary of the planned exercise or mission scenario.

(b) Discusses measures planned to minimize impact on nonparticipating aircraft, such as airport exclusions, joint-use **procedures,** limited activation times, etc. If there are known plans to provide real time area status information and/or traffic advisory services for nonparticipating pilots, include this information in the circular.

2. **A** complete description of the proposed area consisting of boundaries, altitudes, times of use, controlling agency, and using agency.

3. **A** copy of a sectional aeronautical chart depicting the boundaries of the proposed area.

4. The name and address (provided by the proponent) of the person to whom comments on the environmental and land-use aspects **of the** proposal may be submitted.

NOTE-
Do not include statements in the circular that certify NEPA compliance or state that environmental studies are complete. The proponent and/or FAA must consider environmental issues raised in response to the circular before a final determination is made on the proposal.

5. The issue date of the circular and the specific date that the comment **period** ends. Provide at least 45-days for public comment.

NOTE-
When selecting the comment closing date, consider the time needed for the preparation, printing and release of the circular, plus a representative mailing time, in order to afford the public the maximum time to submit comments.

c. SPECIAL **DISTRIBUTION -** In addition to the distribution requirements in Chapter 2, send copies of SUA nonrulemaking circulars to:

1. State transportation, aviation, and environmental departments (or the state clearing house if requested by the state).

2. Local government authorities, civic organizations, interest groups, or individuals that may not have an aeronautical interest, **but** are expected to become involved in a specific proposal.

3. Public libraries within the affected area requesting that the circular be displayed for public information.

4. Persons or organizations that have requested to be added to the circularization list.

NOTE-
① The regional ATD determines special distribution requirements in accordance with regional policies and considering the type of proposal, thepotentialfor controversy, and the extent ofpossible aeronautical impact.

② If the proposed airspace overlaps regional geographical boundaries or airspace jurisdictions, coordinate as required with adjacent regional offices to ensure distribution of circulars to all appropriate parties.

21-I -15. CHARTING AND PUBLICATION REQUIREMENTS

a. All SUA areas except CFAs, temporary MOAs, and temporary restricted areas, shall be depicted on aeronautical charts, and published as required in aeronautical publications.

b. Approved SUA actions normally become effective on the U.S. 56-day, en route chart cycle publication dates (see part 1 of this order).

EXCEPTION-
Effective dates for temporary restricted areas, temporary MOAs, and CFAs are determined by mission requirements instead of the 56-day en route, charting date cycle.

c. Temporary areas shall be described in part 4, Graphic Notices, of the Notices to Airmen (NOTAM) Publication. Normally, publication of the graphic notice will begin two issues prior to the exercise start date and will continue through completion of the exercise. The notice shall include the area's legal description, effective dates, and a chart depicting the area boundaries. For large exercises, a brief narrative describing the exercise scenario; activities; numbers and types of aircraft involved; and the availability of in-flight activity status information for nonparticipating pilots should be included.

NOTE-
Submit temporary SUA graphic notice information, along with the airspaceproposalpackage, to ATA-400 by the cutoff dates specified in the appropriate chapter of this order. Allgraphics submitted must be of high quality and in camera ready form. Facsimile copies are not suitable. ATA-400 will process and coordinate the notice with the Air Traffic Publications Division, ATA-10, forpublication in the NOTAM Publication. Do not submit temporary SUA graphic notices directly to ATA-10.

d. When a SUA action becomes effective before it appears on the affected sectional chart(s), a description and map of the area will be published in part 4 of the NOTAM Publication. This information will be carried in the NOTAM Publication until the change has appeared on the affected sectional chart(s). ATA-400 is responsible for complying with this requirement.

NOTE-
① Minor editorial corrections to a SUA description, or changes to the using or controlling agencies, will not be published in the NOTAMPublication.

② In addition to the above, SUA designations or amendments that occur afterpublication of the latest sectional chart(s) will be listed in the "Aeronautical Chart Bulletin" *section of the appropriate A/FD.* This *information will be carried in the A/FD* until *the change is published on the affected sectional chart(s).*

21-1-16. CERTIFICATION OF SUA GEOGRAPHIC POSITIONAL DATA

a. Geographic positional data for all permanent and temporary SUA boundaries (except CFAs) must be certified for accuracy by NACO before publication and charting. ATA-400 shall submit proposed positional data to NACO for certification. Latitude and longitude positions used in SUA descriptions shall be based on the current North American Datum.

b. ATA-400 shall forward any corrections or recommended changes made by NACO to the regional ATD. The regional ATD will forward the NACO changes to the regional military representative, or civil proponent, for review. The regional military representative/civil proponent will inform the regional ATD of its concurrence with NACO changes or reason for nonconcurrence. The regional ATD will advise FAA Headquarters of the proponent's conclusions. A record of this coordination shall be included in the airspace case file.

21-1-17. LEAD REGION

a. The regional office that is responsible for the geographical area containing the affected airspace processes the SUA proposal. When a proposal overlaps regional office geographical jurisdictions, the concerned regional ATD shall coordinate to determine which office will serve as the lead region for processing the proposal. Coordination between regions is also required when the affected geographical area, and the ATC facility to be designated as controlling agency, are under the jurisdiction of different regional offices.

b. Concerned regions shall ensure that:

1. All affected ATC facilities review the proposal and provide input to the aeronautical study, as required.

2. For nonregulatory proposals, distribution of nonrulemaking circulars includes interested parties in each regional jurisdiction, as necessary.

c. The airspace package submitted to headquarters shall include documentation of regional coordination, affected ATC facility comments and copies of public comments received.

Section 2. PROCESSING

23-2-1. SUBMISSION OF PROPOSALS

Submit restricted area proposals to the regional ATD at least 10 months prior to the desired effective date. The following schedule is an estimate of the minimum time needed to process proposals that require only routine coordination.

NOTE-
Proposals that are complex, controversial, or require extensive environmental analysis could need up to 24 months or more additionalprocessing time beyond that shown in TBL 23-2-1.

23-2-2. TEMPORARY RESTRICTED AREA PROPOSALS

a. Temporary restricted areas are subject to the same rulemaking processing (e.g., NPRM and final rule) and environmental analysis requirements as permanent areas. However, since temporary rest&ted area effective dates are determined by the exercise or mission requirements rather than the standard 56-day en route chart cycle, a shorter overall processing time is the norm.

b. The FAA will attempt to accommodate changes in temporary restricted area requirements. Nonetheless, exercise planners should be aware that the Administrative Procedure Act requires public notice of the proposal and publication of the final rule at least 30 days before the airspace effective date. Moreover, these requirements may not permit late changes to the airspace proposed in the NPRM without causing a delay in the planned exercise start date. Significant changes to the proposal after the NPRM is published could necessitate an additional public comment period, further study of the aeronautical impact, and/or supplemental environmental analysis. Therefore, early planning, careful ground site selection, and close coordination between concerned parties throughout the entire planning process are essential. In selecting the ground site, specific attention must be given to the impact of the proposed temporary restricted area on existing aeronautical operations near the site. In any case, no change should be made within 45 days of the exercise start date unless:

1. It is absolutely essential to the safety and successful conduct of the exercise; or

2. To reduce the amount of airspace to be restricted.

NOTE-
For processing times, see TBL 23-2-2. See Order 7610.4, chapter 2, for additional details.

Calendar Days	[redacted]
D	Proposal r[redacted]onal office.
D+30	Proposal reviewed by region; aeronautical study initiated. Proposal sent to ATA-400 to begin Rulemaking Process.
D+95	Proposal reviewed by ATA-400.
D+105	NPRM published in Federal Register; Public comments directed to appropriate region.
D+150	Pu[redacted]nt period ends.
D+180	Comment[redacted]iewed by the region, and recomme[redacted]ons sent to ATA[redacted].
D+240	Headquarters review of proposal, comments, and regional recommendations. Final determination; Rule prepared and submitted to Federal Register.
D+250	Rule Published in Federal Register (at least 30 days pnor to effective date).
D+250-306	Within this time frame; NACO cutoff date, and Rule effective date.

TBL 23-2-1

Calendar Days	Action
D	Proposal received by FAA regional office.
D+30	Proposal reviewed by region and submitted to ATA-400; aeronautical study initiated as required.
D+95	Proposal received by ATA-400, NACO coordination; NPRM sent to Federal Register. Comments directed to appropriate regional office.
D+105	NPRM published in Federal Register.
D+150	Public comment period ends.
D+180	Comments reviewed by region; recommendation sent to ATA-400.
D+240	ATA-400 review of proposal, comments, and regional recommendation. Final determination. Rule prepared and sent to Federal Register. Graphic Notice sent to NOTAM Publication.
D+250	Rule published in Federal Register (at least 30 days prior to effective date).

TBL 23-2-2

Chapter 24. WARNING AREAS

Section I. GENERAL

24-1-1. DEFINITION

A warning area is airspace of defined dimensions, extending from 3 NM outward from the coast of the United States, designated to contain activity that may be hazardous to nonparticipating aircraft.

24-1-2. PURPOSE

The purpose of a warning area is to warn nonparticipating pilots of the potential danger from activities being conducted. A warning area may be located over domestic waters, international waters, or both.

24-1-3. IDENTIFICATION

Identify warning areas with the letter "W" prefix followed by a dash; a two- or three-digit number; a location; and the two-letter state abbreviation (e.g., W-291, San Diego, CA). A letter suffix is used to indicate subdivisions. Identification numbers are assigned by ATA-400.

24-1-4. JOINT USE

Warning areas may be considered for joint use if the area can be released to the FAA during periods when it is not required for its designated purpose, and provided the warning area is located in airspace wherein the FAA exercises ATC authority under ICAO agreements. When designating a warning area for joint use, a letter of agreement shall be executed between the controlling and using agencies to define the conditions and procedures under which the controlling agency may authorize nonparticipating aircraft to transit, or operate within the area. Apply the provisions of paragraph 23-1-5, as appropriate.

Section 2. PROCESSING

24-2-I. SUBMISSION OF PROPOSALS

Submit warning area proposals to the regional ATD at least 7 months prior to the desired effective date. The following schedule is an estimate of the minimum time needed to process proposals that require only routine coordination.

NOTE-
Proposals that are complex or controversial could require significantly longer processing time than that shown in TBL 24-2-I.

24-2-2. EXECUTIVE ORDER 10854 COORDINATION

In accordance with Executive Order 10854, all warning area proposals must be coordinated with the Departments of State and -Defense. This coordination will be accomplished by ATA-400.

Calendar Days	Action
D	Proposal received by **FAA** regional off ice.
D+30	Proposal reviewed by region; Aeronautical study initiated, as required Nonrule circular published.
D+75	Public comment period ends. Aeronautical study due.
D+105	Comments reviewed by region; recommendation sent to ATA-400.
D+150	Executive Order 10854, NACO coordination, and final determination by ATA-400.
D+160	NACO cutoff date. Warning area published in NFDD (on or before cutoff date for next available charting date).
D+240	Warning area effective date.

TBL 24-2-I

Section 2. PROCESSING

25-2-I. SUBMISSION OF PROPOSALS

Submit MOA proposals, other than temporary MOAs, to the regional ATD at least 8 months prior to the desired effective date (see paragraph 25-2-2 for temporary MOA proposals). The following schedule is an estimate of the minimum time needed to process proposals that are non-controversial, without significant aeronautical impact and require only routine coordination.

NOTE-
Complex processing time beyond that shown in TBL 25-2-1, controversial proposals, or those needing extensive environmental analysis may require as much as 24 or more months.

Calendar Days	Action
D	Proposal received by FAA regional office.
D+30	Proposal reviewed by region. Nonrule circular published. Aeronautical study initiated, as required.
D+75	Public comment period ends. Aeronautical study due.
D+105	Comments reviewed by region and recommendation sent to ATA-400.
D+165	Proposal, comments, and recommendation reviewed by ATA-400. NACO coordination and final determination.
D+175	NACO cutoff date. MOA published in NFDD on or before this date.
D+231	MOA effective date and/or 56-day airspace effective date.

TBL 2.5-2.-1

25-2-2. TEMPORARY MOA PROCESSING

a. Submit temporary MOA proposals to the regional ATD at least 4 months prior to desired effective date (See TBL 25-2-2). When there is a known requirement for multiple activations of the same temporary MOA over a specific time period, proponents are encouraged to combine the requests into a single proposal covering the entire period. This will provide notice to the public that is more effective and reduce administrative processing workload.

b. Temporary MOA effective dates are determined by the exercise requirements rather than the 56-day en route chart cycle used for permanent SUA. Consequently, a shorter overall processing time is required.

c. See paragraph 2 l-1-1 5 of this order for graphic notice and narrative description information to be submitted with the proposal package.

d. For recurring temporary MOAs, an abbreviated proposal package may be submitted at the discretion of the regional ATD. See paragraph 21-3-4 of this order for details.

Calendar Days	Action
D	Proposal received by FAA regional office.
D+30	Proposal reviewed by region; Nonrule circular published; aeronautical study initiated.
D+75	Public comment period ends. Aeronautical study due.
D+105	Comments reviewed by region. Recommendation sent to ATA-400.
D+135	Proposal, comments, and recommendation reviewed by ATA-400. NACO coordination and final determination. Graphic Notice sent to NOTAM Publication.

TBL 25-2-2

Section 3. PROCESSING

26-3-l. ALERT AREA PROPOSALS

Alert area proposals shall contain all applicable items listed in chapter 2 1, section 3 of this order; except that designation of a controlling agency, completion of an aeronautical study, and FAA environmental analysis are not required.

26-3-2. SUBMISSION OF PROPOSALS

Submit alert area proposals to the regional ATD at least 6 months prior to the desired effective date. The following schedule is an estimate of the minimum time needed to process proposals that require only routine coordination,

NOTE-
Controversial proposals may require significantly greater processing time than that shown in TBL 26-3-l.

Calendar Days	Action
D	Proposal received by FAA regional office.
D+30	Proposal reviewed by region. Non rule circular published.
D+75	Public comment period ends.
D+105	Comments reviewed; recommendation sent to ATA-400
D+135	NACO coordination; proposal, comments and recommendation reviewed by ATA-400. Final determination.
D+145	Alert Area cutoff date and effective date published in NFDD.
D+145-201	Within this time frame; NACO cutoff date and Alert Area effective date.

TBL 26-3-I

Section 2. PROCESSING

27-2-1. SUBMISSION REQUIREMENTS

Submit CFA proposals to the appropriate regional ATD at least 4 months prior to the desired effective date.

27-2-2. CFA PROPOSALS

CFA proposals shall include the applicable items from chapter 21, section 3. In addition, provide the following information:

a. Justification for establishing a CFA instead of a restricted area.

b. Surveillance and safety procedures to be applied.

27-2-3. REGIONAL ACTION

Upon receipt of a CFA proposal, the ATD shall:

a. Assign a nonrulemaking study number.

b. Determine if circularization of the proposal is required.

c. Review the proposal for justification and compliance with CFA criteria.

d. Determine if the proposed CFA would conflict with the requirements of other airspace users. Consider proximity of Federal airways, VFR flyways, etc.

e. Evaluate the adequacy of surveillance and safety procedures.

f. Determine limitations, safety precautions, or other requirements to be observed as conditions of approval.

g. If the operation also requires a waiver to part 101, process that waiver and complete FAA Form 7711-1, Certificate of Waiver or Authorization.

h. Issue an approval letter to the proponent (see paragraph 27-2-4), or inform the proponent in writing if the CFA is disapproved.

27-2-4. APPROVAL LETTER

Inform the proponent in writing of the approval or renewal of the CFA. Include the following information as required:

a. CFA description (boundaries, altitudes, and times of use).

b. Activity for which the CFA is approved.

c. Using agency name.

d. Effective/expiration date(s).

e. Conditions, operating limitations, and/or safety precautions to be observed (see section 3 of this chapter).

f. Additional provisions, if needed.

g. Instructions for the user to notify the operators of airports in the vicinity of the CFA of the activities to be conducted, if required.

h. If applicable, attach FAA Form 7711-1.

i. Instructions and suspense date for submitting a CFA renewal request, if applicable.

Section 2. EVALUATING AERONAUTICAL EFFECT

28-2-I. AERONAUTICAL REVIEW

a. At a minimum the following items shall be studied as part of any aeronautical review:

1. Location of the proposed operation.

2. Aircraft operations affected by the proposed operation,

3. Air traffic flows in the proposed area of the operation.

4. ATC facility having control over the affected airspace.

5. As part of the review, plot any effected airports "LFZ, CFZ, and SFZ." In addition, evaluate any control measures which may mitigate the effects.

NOTE-
The LFZ, CFZ, and SFZ need only be consideredfor visible laser systems.

6. The irradiance levels listed below shall be adhered to when evaluating laser activities in close proximity to an airport. In addition, laser light shall not be allowed to enter these zones if ix-radiance values exceed these limits.

(a) A laser-free zone is equal to or less than 50 nW/cm².

(b) A critical flight zone is equal to or less than 5 μW/cm².

(c) A sensitive flight zone is equal to or less than 100 μW/cm².

(d) A normal flight zone is equal to or less than the MPE.

EXCEPTION-
"When control measures (i.e. visual observers) mitigate any issues raised by the aeronautical review, irradiance levels may exceed these numbers."

b. Consult FDA/CDRH personnel for technical advice, (e.g. rp calculations)

c. Scientific/research (SR) **lasers in** accordance with 21 CFR Section 1010.5 may **be** exempt from Title 49 and, in addition, may not be able to comply with the above procedures. Regardless of whether or not a proponent is exempt from the provisions, when a proposal is received follow the above procedures.

28-2-2. LOCAL LASER WORKING GROUP (LLWG)

When necessary, the ATD may convene a LLWG to assist in evaluating proposed local laser activities when it is determined such a need **exists.**

a. The ATD shall forward information **on** a proposed outdoor laser activity to the local AT facility.

b. The local AT facility shall act **as** the focal point for the LLWG. Other participants may include, but not limited to, representatives from the center, "non-federal" towers, airport management, airspace users, city/county/state officials, other government agencies, military representatives, qualified subject experts, laser manufacturers, etc.

c. The LLWG shall resolve issues regarding local laser operations and forward recommendations to the ATD office **as soon** as practicable.

28-2-3. LASER SYSTEM POWER RANGE TABLE

The laser system power range tables (TBL 28-2-l and TBL 28-2-2) shall only be applied to continuous wave laser systems. Proponents are required to resolve RP laser system calculations with the FDA, laser manufacture, or by submitting a completed Laser Configuration Worksheet prior to requesting determination by the FAA.

a. TBL 28-2-l specifies the minimum distance from the laser source (for 1 rnrad divergence) which should be protected horizontally from the laser source.

b. TBL 28-2-2 specifies the minimum distance from the laser source (for 1 mrad divergence) which should be protected **vertically** from the laser source.

c. The minimum altitude may be determined by multiplying the laser distance from TBL 28-2- 1 by the sine of the angle of elevation

of the laser beam from TBL 28-2-2. For example, Altitude = Laser Distance x Sine = (maximum elevation angle).

d. The minimum horizontal distance may be determined by multiplying the laser distance from TBL 28-2-l by the cosine of the angle of elevation of the laser beam from TBL 28-2-2. For example, Horizontal Distance = Laser Distance x Cosine = (minimum elevation angle).

e. Do not reduce calculated distances for techniques incorporated by the manufacturer unless validated by FDA/CDRH.

f. All distances shall be rounded up to the next 100-foot increment. See example problems 1, 2, and 3 that follow the Laser System Power Range Table, TBL 28-2-l.

28-2-4. CONTROL MEASURES

Physical, procedural, and automated control measures that ensure aircraft operations will not be exposed to levels of illumination greater than the respective maximum n-radiance levels established by the MPE, LFZ, CFZ, and SFZ.

a. Physical beam stops at the system location or at a distance used to prevent laser light from being directed into protected volumes of airspace.

b. Adjusting the beam divergence and output power emitted through the system aperture to meet appropriate irradiance $\mu W/cm^2$ distance.

c. Beams can be directed in a specific area. Directions should be specified by giving bearing in the azimuth scale O-360 degrees and elevation in degrees ranging from O-90 degrees, where zero degrees is horizontal and 90 degrees is vertical, bearings shall be given in both true and magnetic north.

d. Manual operation of a shutter or beam termination system can be used in conjunction with airspace observers. Observers shall be able to see the full airspace area surrounding the beam's paths to a distance appropriate to the affected airspace.

e. Scanning of a laser system that are designed to automatically shift the direction of the laser emission can be used. However, scanning safeguards must have safeguards acceptable by the FDA and the FAA. The FDA recommendation must be included in the proposal to the FAA.

NOTE-
Scanning may reduce the level of illumination; however. it may also increase the potential frequency of an illumination.

f. Automated systems designed for use to detect aircraft and automatically terminate, redirect the beam, or shudder the system, must be acceptable to the FAA before the device may be accepted as a control measures which satisfies as an equivalent level of safety.

LASER SYSTEM POWER RANGE TABLE

CW Laser Beam Divergence: 1 Milliradian

*** NOT TO BE USED WITH RP SYSTEMS**

Output Power Watts	NOHD 2.6mW/cm² (.0026)	SFZ 100µW/cm² (.0001)	CFZ 5µW/cm² (.000005)
1	726	3703	18600
2	1027	5237	23200
3	1253	6414	28700
4	1452	7406	33100
5	1623	8280	36000
6	1778	9070	40800
7	1921	9787	43800
8	2054	10474	46800
9	2178	11109	48700
10	2296	11710	52400
11	2408	12281	54800
12	2515	12827	57400
13	2618	13351	59700
14	2717	13855	62000
15	2814	14322	64100
16	2904	14812	66200
17	2993	15288	68300
18	3080	15710	70300
19	3165	16141	72200
20	3247	16580	74100
25	3630	18515	82801
30	3977	20282	90704
35	4295	21907	97971
40	4592	23220	104736

Output Power Watts	NOHD 2.6mW/cm² (.0026)	SFZ 100µW/cm² (.0001)	CFZ 5µW/cm² (.000005)
45	4870	24840	111089
50	5132	26148	117098
55	5384	127462	1122814
60	5624	28683	128275
65	5853	29854	133523
70	6074	30881	138553
75	6288	32088	143215
80	6494	33120	148118
85	6694	32140	152877
90	6888	35129	157104
95	7076	36092	161409
100	7260	37030	165802
105	7440	37944	168691
110	7616	38837	173885
115	7790	39710	177588
120	7962	40684	181408
125	8117	41390	185102
130	8278	42210	188767
135	8436	43014	192363
140	8590	43803	195893
145	8743	44578	199360
150	8892	45090	202769
155	9039	45365	205120
160	9184	46927	209419

NOTE-

① To determine nominal hazard zone distance (NHZD) for lasers having divergence values other than 1.0 mrad use theformula - NOHD @ 1.0 mrad ÷ mrad = NHZ.

EXAMPLE-

Power 40 W, Divergence 7 mrad

NOHD 40W @ 1.0 mrad = 4,592

4,592 ÷ 7 = 656 NOHD. Rounded up to nearest hundredfeet = 700feet.

(A beam divergence of. 7 would make this calculation 7.000 feet)

■ The proponent validates repetitive pulsed information with the FDA or submits a completed laser configuration worksheet.

TBL 28-2-I

COSINE VALUES
*** NOT TO BE USED WITH RP SYSTEMS**

Elevation Angle	Sine (minimum)	Cosine (maximum)
0	.0000	1.0000
5	.0872	.9962
10	.1737	.9848
15	.2588	.9659
20	.3220	.9397
25	.4226	.9063
30	.5000	.8660
35	.5736	.8192
40	.6428	.7660

Elevation Angle	Sine (minimum)	Cosine (maximum)
45	.7071	.7071
50	.7660	.6428
55	.8192	.5736
60	.8660	.5000
65	.9063	.4226
70	.9397	.3420
75	.9659	.2588
80	.9848	.1737
85	.9962	.0872
90	1.0000	.0000

Laser Problem Solutions

Example Problem 1:
Laser output power = 15 watts
Laser beam divergence = 1 .O mrad
Find: Laser distance:

1. Find Table 29-2-2 [1] at 15 watts in the Laser Output Power column.
2. Proceed horizontally and read: NOHD of 2,814 feet, CFZ of 64,100 feet, SFZ 14,322 feet.

Answer: (with rounded up distances): NOHD 2,900 feet, CFZ 64,100, SFZ 14,400 feet.

Example Problem 2
Laser output = 18 watts
Laser beam divergence = 1 .O mrad
Maximum elevation angle 60”
Minimum elevation angle 20”
Find -Horizontal and vertical distances to be protected:

1. Laser distance (from TBL 28-2- 1) = 3,080 feet.
2. Sine of 60” maximum elevation angle (from TBL 28-2-2) = 0.8660.
3. Find altitude by multiplying 3,080 feet by 0.8660 = 2,667 feet.
4. Cosine of 20° minimum elevation angle **(from** TBL 28-2-2) = 0.9397
5. Find horizontal distance by multiplying 3,080 feet by 0.9397 = 2,894 feet.

ANSWER: Minimum required protected airspace is 2,900 feet horizontally and 2,700 feet vertically from the laser source.

Example Problem 3
Power = 25 watts
Laser Output NOHD at 1 mrad = 3,630 feet.
Beam Divergence = .7 mrad
Find: Laser NHZ

1. Apply Formula
2. 3630 feet, ÷ .7 = 5185 feet. Formula

Answer: NHZ 5200 feet

TBL 28-2-2

Section 4. NOTICES TO AIRMEN

28-4-l. ISSUANCE OF NOTICES TO AIRMEN (NOTAM)

a. To enhance safety of flight, the appropriate regional ATD shall prepare the NOTAM and notify the United States NOTAM Office Facility via telephone **(703)** 904457, or fax (703) 904-4437 within seven days of a proposed laser activity to alert pilots of such activities.

b. The NOTAM will emphasize the potential hazardous effects and other related phenomena that may be encountered by laser light emissions. Include facility to notify, and any other information deemed appropriate.

c. The regional ATD may further delegate notification responsibility to the respective Flight Service Station, and/or Air Traffic Facility.

d. When deemed appropriate The ATD may direct the proponent to activate or cancel the FDC NOTAM, specific to the laser activity. The ATD shall explain the responsibility of the proponent concerning appropriate NOTAM actions.

e. The ATD is responsible for canceling the NOTAM except as noted above in paragraph 28-4-l c. and d.